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TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to
Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

The Government's Nationalisation Plans

MR. HERBERT MORRISON, Leader of the House of Commons, on November 19 stated that in addition to the Bank of England, coal, civil aviation, and telecommunication, the Government is to proceed with plans for the nationalisation of electricity, gas, inland transport, and dock and harbour undertakings. The Bill to nationalise the coal-mining industry will be introduced during the present session, and in the lifetime of this Parliament the Government intends also to introduce measures for the electricity supply and the gas industries. Also during the present Parliament, measures designed to bring transport services under public ownership and control will be introduced. So far as concerns inland transport, powers will be taken to bring under national ownership the railways, canals, and long-distance road-haulage services. As to road passenger transport, Mr. Morrison said it was considered essential that the undertakings of the municipalities and companies should be fully co-ordinated with the national scheme, and it had to be considered whether this could best be achieved by transferring ownership to a national authority or by providing for the creation of regional or joint boards responsible for their own finances. The second alternative would make it necessary for some control to be exercised over these boards by a national authority, so as to ensure conformity with general policy and their proper correlation both with one another and with other forms of transport. Dock and harbour undertakings would be brought within the scope of the national scheme. Mr. Morrison said that the most suitable form of public ownership was under examination, as was also the question of including certain appropriate ancillary activities. During the interval which would elapse before these plans could be carried into effect, all necessary development in the industries concerned must proceed. The Government would see that progressive undertakings were not prejudiced if they continued to develop in the interim period, and the appropriate departments would enter into early consultation with the industries concerned. The compensation payable would have regard to any extent to which an undertaking had not been maintained up to the time of transfer.

Towards Rail and Road Co-ordination

Two developments which constitute important progress towards the long-sought objective of co-ordination between railway and road services have been made known during the past week. A basis for the establishment of a national rates structure and classification for the road haulage industry has been put forward in the report of the Fawcner Committee. This report is dealt with in some detail on page 57. The second development is the result of joint discussions between the General Managers of the main-line railways and the Chairman and Vice-Chairman of the Road Haulage Association. These discussions were initiated last May with the approval of Lord Leathers, then Minister of War Transport. The present Minister, Mr. Alfred Barnes, was informed of the conversations in August, and expressed his wish that they should continue. The object of the talks was to explore the possibilities of economic co-operation between rail and road on lines which would give the trading community transport services of the highest efficiency and which would reach a standard which neither rail nor road separately could hope to achieve. The conversations have proceeded on the basis that, in peace as in war, the national interest must come first, and the obligations of a public service must be accepted. This approach obviously opened up entirely new possibilities, extending far beyond the limited sphere of rates agreement which was the primary subject of earlier discussions.

Two Important Lines of Experiment

One suggestion which has been considered is that the user of express wagons should be placed at the disposal of hauliers by the railways. A field was seen for co-operation in an extended use of containers. Another suggestion of far-reaching importance is that the railways should discontinue all or many of their road goods services and use those of road hauliers. Some railway stations might be closed and if collection and delivery services were organised efficiently to serve a number of stations, a two-fold object would be achieved—road operations would be more economic as a result of concentration in the hands of road hauliers, and railway services would be improved. This suggestion has passed the stage of preliminary discussion. Four areas—Hull, East Kent, Potteries, and Cornwall—have been selected so that all aspects of the plan can be considered by the local rail and road representatives. From their joint inquiries a plan for consideration by the General Managers and the Road Haulage Association will

be prepared. The local investigations are related solely to the technical and physical possibilities. The importance of the proposal is that it offers promise of a practical fulfilment of the objective of rail and road co-ordination in stages. It is a valuable fruit of the labours of the Road-Rail Conference, and may result in evolution of a workmanlike division of function for the two major inland transport industries.

Universal Directory of Railway Officials

With its present edition, just published, the *Universal Directory of Railway Officials and Railway Year Book* began its second half-century of continuous publication. As explained in a prefatory note, it appeared during the early stages of preparation of this edition that a most inauspicious start was being made, as the whole of the standing type was destroyed in a fire at the Edinburgh works of the printer in November, 1944. The vast improvement in the world situation has enabled use to be made of the inevitable period of delay to revise the volume far more thoroughly than otherwise would have been the case. Victory in Europe, followed by unexpectedly-rapid victory over Japan, have combined to free communications to most territories; and, despite the dislocation resulting from the war, the present volume may be regarded as the first post-war edition, in contents as well as date. The first edition of the *Universal Directory of Railway Officials* was compiled from official sources by the late Mr. S. Richardson Blundstone, then Editor of *The Railway Engineer*, and issued in 1895. The preface expressed the belief that this was the first attempt that had been made to publish a directory of railway officials throughout the world, and, in fact, the intervening half-century has failed to produce any similar work in the English language.

Overseas Railway Traffics

During the past two weeks the Argentine Railways, with the exception of Buenos Ayres Southern Railway, have again recorded increased weekly traffic receipts. The Entre Rios Railway aggregate increase in receipts for the first 19 weeks of the current year's working is 12.5 per cent. over last year, but there is no indication to what extent this rise, which is due mainly to the 10 per cent. tariff increase authorised by the Argentine Government, has been cancelled by increased operating expenditure due to the higher salaries and wages now being paid to the staff. The receipts of the other railways do not, so far, reflect a full 10 per cent. increment over last year.

	No. of week	Weekly traffic £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific*	19th	140,625	+ 8,125	2,377,500	+ 64,000
Buenos Ayres Great Southern*	19th	176,000	-15,312	3,595,875	+ 299,125
Buenos Ayres Western*	19th	75,125	+ 8,625	1,343,500	+ 56,562
Central Argentine	19th	190,356	+16,459	3,597,447	+ 244,704
Entre Rios*	19th	29,062	+ 5,156	500,862	+ 55,425

* Pesos converted at 16 to £

Amongst other South American railways the Great Western of Brazil for the 45 weeks of the current year has an aggregate increase of 14.8 per cent. in traffic receipts and the Leopoldina Railway for the same period shows an aggregate increase of 14.4 per cent.

The Development of Communications in India

In a pamphlet issued by the Information Department of the India Office, entitled "India Plans for the Future," post-war development of communications is briefly outlined. To serve an area of 1½ million sq. miles there are at present only 41,000 route-miles of railway and 276,000 miles of roads. A 20-year programme contemplates the building of 400,000 miles of roads at a capital cost of £337,000,000 and the improvement of subsidiary roads in every Province. Railway development is to be aided by a rapid expansion of locomotive building in India. Already the Singbhum workshops of the East Indian Railway have been taken over by Tatas, and production is expected to begin in 18 months' time with an output of 50 engines a year in addition to boiler making. Other workshops are to be opened, and within five years it is hoped that India will be producing her full requirements of locomotives and boilers. Over 11,000 miles of air routes are planned; the capital investment of operating organisations is estimated at £2,150,000, and the annual cost of operation at over £1,875,000. Daily return air services are to be flown between the principal cities of India and those of Ceylon, Burma, and Afghanistan. External air services are also envisaged to the United Kingdom, the Near East, China, and East Africa, involving a capital investment of operating companies of about £2,000,000 and a like sum for operation

annually. Plans prepared provide for 111 aerodromes and landing-grounds costing about £12,000,000. A further £450,000 are to be spent on the installation and equipment of radio stations.

Purchase of Kitson & Co. Ltd.

J. & H. Maclaren Limited has acquired the property and goodwill, work in hand, and so forth, of Kitson & Co. Ltd., of Leeds. This old-established firm made locomotives for many years before 1938, when its right to manufacture locomotives was acquired for valuable consideration by the Locomotive Manufacturers Co. Ltd., as part of a plan of voluntary rationalisation then necessary by reason of the conditions ruling in the industry. That transaction provided for Kitson's Airedale Foundry to continue its general engineering business without causing unemployment. Early last year, when war-time exigencies required increased manufacturing capacity, the Locomotive Manufacturers Association enlarged its already extensive sub-contracting activities by arranging for the Kitson plant to be made available as a potential addition to the industry's resources. Orders for the Airedale Foundry for locomotive boilers and spares have been placed through the Locomotive Manufacturers Co. Ltd., and the present sale is subject to the right of the Locomotive Manufacturers Co. Ltd. to withdraw the facilities for locomotive engineering at its discretion.

High Prices for Railway Relics

Unusually high prices were realised by Messrs. Sotheby & Company, on November 13, when they auctioned the Dendy Marshall Railway Collection, and some of these were secured for quite modern items. For example, a copy of Barclay Harvey's "History of the Great North of Scotland Railway," published in 1940, was sold for £6; a large part of the edition was destroyed by fire in the London blitz. On the other hand, a reduced facsimile of W. P. Frith's famous oil painting "The Railway Station" signed by the artist and dated 1862 realised £250, which, we believe, was little more than Mr. Dendy Marshall paid for it. A collection of 38 books and pamphlets on the atmospheric railway, covering the period 1810 to 1850, was purchased for £52 by Francis Edwards Limited; 18 railway police truncheons secured £50; and the collection of 530 railway and engineering medals and tokens (including the Moyaux collection) secured £180. J. U. Rastrick's manuscript notebook on the Rainhill locomotive trials of 1829, a very important historical document, has gone to the Science Museum for £58. Other prices are given in a news article, page 544. In all, the sale realised £3,511 12s.

Harwich—Hook of Holland Service Restored

After a lapse of six years, the L.N.E.R. steamship service between Harwich (Parkeston Quay) and the Hook of Holland has been restored. At 8 p.m. on November 14, the "Hook Continental" left Liverpool Street Station, L.N.E.R., on its first trip for Harwich (Parkeston Quay), where it was due at 9.40 p.m., in time for the departure of the ss. *Prague* at 10 p.m. At Liverpool Street, His Excellency the Netherlands Ambassador, the President, General Manager, and other officers of the Netherlands Railways, and Dutch officials, accompanied by Sir Ronald Matthews (Chairman), Sir Murrough Wilson (Deputy-Chairman), Sir Charles Newton (Chief General Manager), and other officers of the London & North Eastern Railway Company, inspected the train and the locomotive, which was 4-6-0 No. 8304, *Gazelle*, decorated with British and Dutch flags. This locomotive is one of the few of the company's engines at present painted green. Immediately before the departure of the train the British national anthem was played, and then, as the train commenced to move, the Dutch national anthem. Further details concerning the service are given on another page.

L.M.S.R. Extensible-Unit Stations

In 1940 the L.M.S.R. set up a Building Research Committee to consider constructional systems for station platform buildings. The result of their deliberations, experiment and research is the prototype extensible-unit station which has been erected on a disused platform at Queens Park Station, L.M.S.R. The extensible-unit system which has a wall thickness of 4 in. is designed for use in the provision of new and the rebuilding of existing stations. Under this system buildings of several standard sizes can be built up with components like an expanding book-case, so that the station thus constructed can be enlarged easily by additional units should circumstances require it. This type of station

can be erected without calling on building labour and materials required to complete the Government's housing programme, and it is understood that the surplus capacity of war industries can produce all the components required. Queens Park was selected for the experimental prototype station as in that position, where the platforms are flanked by steam and electric tracks, it was expected the new type of construction would be subject to the severest tests from vibration.

The Signal Engineers Debate Cable Work

Although the importance of using the best methods when providing wiring and cables for signalling installations has been acknowledged for a long time, there have been considerable developments since the first power interlocking work in this country was carried out and in the installations put in after the war of 1914-18 much attention was given to this vital matter. The risks associated with possible short circuits or earthed connections were well known long before and many different designs of circuit, of one type and another, had been thought out in an endeavour to provide the maximum amount of "cross protection," as it was termed. Nevertheless, whatever may be attainable in this way, nothing can alter the fundamental fact that for signalling purposes, except perhaps a few subsidiary ones, only the best work will suffice. This applies not merely to the form of the cable itself, but to the means provided to protect it from damage, to run it, joint its various lengths and make connection to the apparatus associated with the circuits it conveys. That the details involved in doing this to best advantage are not only varied but admit of several ways of being regarded and put into effect was well brought out in the discussion opened by Mr. A. W. Woodbridge before the Institution of Railway Signal Engineers on November 2, when some important differences of opinion found expression.

A Serious Case of Overrunning

The accident at Ecclefechan, L.M.S.R., on July 21, 1945, was an instance of failure on the part of an experienced and trusted driver which must remain unexplained. The 1 p.m. express from Glasgow (Central) to London, travelling at high speed, passed the distant signal at caution, overran the outer and inner homes and collided with a freight train, which was being set back into a siding to clear the line for the express. The enginemen lost their lives, but there was remarkably little damage to the coaches and none of the 31 passengers injured had to remain more than 10 days in hospital. The speed at the time of impact was probably as much as 65 m.p.h. The essential facts of the case are given in our summary of Major G. R. S. Wilson's report elsewhere in this issue. The train had passed intermediate block signals of the searchlight type between Lockerbie and Ecclefechan and there is just the possibility that the driver may have ignored a caution indication at the intermediate distant. The report naturally refers at some length to the question of automatic train control and the position obtaining on the railways in this country today, which is bound up with the policy to be pursued in improving the signalling arrangements on main lines, and forming part of the general programme, already announced by the companies, of modernising the railway system. "It seems desirable," says Major Wilson, "that a review of the position generally should not be long delayed, at any rate so far as high speed main line routes are concerned."

Proposals for Charging Merchandise Traffic By Road

THE Road Haulage Association has published a report made by the committee set up by the Road Panel of the Road-Rail Central Conference under the Chairmanship of Mr. N. D. Fawcner to investigate and produce a classification and national rates structure applicable to the road haulage industry. In setting about its task, the committee has had regard solely to road factors, but clearly it has in mind the necessity for agreement with other forms of inland transport, because it expresses the opinion that before its proposals could be brought into effective operation it would be necessary to consult with the railway companies: it also postulates that legislation will have to be forthcoming giving powers of enforcement, and at the same time relieving the railways of certain of their legal restrictions.

The report enunciates in detail the factors which have been taken into account in producing the figures, which, it appears, are based on the costings and experience of representative road

haulage firms. It is pointed out that in constructing one standard rates schedule for application throughout the whole of the country, there is an initial difficulty in that road operators working in rural districts enjoy advantages in respect of certain costs over those in large industrial centres, but on the other hand the latter have their own advantages; therefore a certain amount of give-and-take was necessary. The scales of rates submitted in the report are intended to represent minimum amounts which are to be charged to avoid indiscriminate rate cutting. It is suggested that in exceptional circumstances, to protect the public it may be essential, because of geographical and other difficulties to increase the rates in the direction of a maximum ceiling.

In arriving at the costings, regard has been had to every conceivable relevant factor, and to support its findings voluminous figures are given in the report. The recommendation is that the road haulage industry should adopt 12 scales of rates for traffic other than "small," arranged in weight gradations, as follow:—

10-ton lots	} each with 3 scales of mileage rates
6 " "	
4 " "	
2 " "	

A classification of traffic is proposed based primarily on the size of the consignment and the loading factor, that is, bulk in proportion to weight, but also taking into some account the cost of handling, liability to damage, and apparently, to a very small degree, "value."

In the case of "small," under which term is included all consignments of less than 2 tons, the weight gradations in the scales commence at 28 lb. rising by steps of 28 lb. to 1 cwt. and thereafter by 1 cwt. steps to 20 cwt., but it is pointed out that the weight gradients can be adjusted to meet requirements. All "small" above 20 cwt. would be charged on actual weight calculated at the rate applicable to 20 cwt. No recommendation is made as to "small" weighing less than 28 lb. because it is felt that in these cases there are other factors which require close consideration in consultation with other forms of transport.

It is recommended that no attempt should be made to standardise rates for movements of traffic up to 20 miles because of divergences in local conditions and special factors which would need to be taken into consideration.

A sample form of classification for presentation to the public is provided. It consists of a list of commodities, and against each is indicated the particular mileage rates scale to be charged having regard to the weight of the consignment. For traffic giving good loading the lowest scale rate is for consignments of 10 tons, and in the case of lighter loading traffic the lowest rate is for a quantity which can be loaded into the most suitable type of vehicle for the particular traffic, for example:—

Index of commodities	Rate table to be charged				
	10 tons	6 tons	4 tons	2 tons	"Small"
Apples	A 3	B 3	C 2	D 1	E 1
Biscuits			C 3	D 2	E 2
Cement	A 2	B 2	C 1	D 1	E 1
Flowers (cut)				D 3	E 3
Leather (dressed)	A 3	B 3	C 2	D 2	E 2
" (undressed)	A 3	B 3	C 2	D 1	E 1
Sugar	A 2	B 2	C 1	D 1	E 1
Tin plates	A 1	B 1	C 1	D 1	E 1

(In each group the scale numbered "1" is the lowest)

It is proposed that the scales of rates for consignments of 2 tons and over should mount in stages of 5 miles from 20 up to 100 miles, and thereafter in stages of 10 miles. In the case of "small," the distance gradations are wider.

The scales of suggested rates which have been drafted are presented in the report with the provisos that they are submitted only to illustrate the principles recommended, and also that although the costing figures were accurate at the time they were prepared, subsequent fluctuations may necessitate adjustment. Attention is drawn to the fact that the details of classification will need to be discussed with the railway companies.

Comparison of the suggested rates scales with existing exceptional railway rates is not possible without access to information possessed only by the railway companies. A comparison with present railway standard rates, to which a collection and delivery

charge has been added, indicates that the railway standard rates comparable with the proposed road scales are as under :—

Road scales	Equivalent rail standard	
	From (at 20 miles) Class	To (at 500 miles) Class
10 tons	A 1 1	8
A 2 10		
A 3 7		10/11
6 tons	B 1 1	10
B 2 11		
B 3 11		
4 tons	C 1 6	11
C 2 12		
C 3 9		14
2 tons	D 1 15	13
D 2 15		13
D 3 16		19

A comparison between the suggested road scales for "small" and the existing railway charges for small parcels shows that the road figures generally are much higher than the railway charges for such traffic by merchandise train and are higher in some cases than the railway passenger train charges; typical examples are :—

Miles	Proposed road scales		Existing railway charges					
	E 1	E 2	Goods train Based on standard		Passenger train General		General parcels	
			Class 12	Class 18	Class 12	Class 18	Class 12	Class 18
28 lb.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
20	2 1	2 1	0 11	1 0	1 10	1 4	1 4	1 4
50	2 2	2 4	1 1	1 3	2 8	1 11	1 11	1 11
80	2 3	2 5	1 3	1 6	3 6	2 4	2 4	2 4
120	2 4	2 6	1 4	1 7	3 11	2 6	2 6	2 6
200	2 6	2 9	1 7	2 0	4 2	2 9	2 9	2 9
300	2 9	3 1	1 10	2 5	4 7	3 3	3 3	3 3
400	3 0	3 4	2 1	2 9	4 8	3 5	3 5	3 5
1 cwt.	3 5	3 6	1 9	2 1	4 9	3 6	3 6	3 6
20	4 1	4 5	2 2	2 9	7 5	4 9	4 9	4 9
50	4 4	4 10	2 7	3 5	11 1	7 8	7 8	7 8
80	4 9	5 4	3 0	4 1	13 4	8 7	8 7	8 7
120	5 5	6 3	3 9	5 3	15 4	9 3	9 3	9 3
200	6 5	7 6	4 7	6 9	17 11	11 9	11 9	11 9
300	7 3	9 8	5 5	8 2	18 5	12 7	12 7	12 7

This is probably the first time that a comprehensive and scientifically prepared statement of factual road costs has been published and the figures are illuminating. The R.H.A. Rates & Charges Committee Report represents another step towards solving the problem of co-ordination of rail and road charges, although a great deal of work still remains to be done. The importance of the report does not lie in the production of a rigid series of rates, for this it does not do. It does put forward, however, a system under which rates could be arrived at, and which has a logical basis. The next step would appear to be discussions between the Road Panel and the Rail Panel of the Road-Rail Central Conference. The report already has been submitted to the road haulage industry.

Coal Traffic Problems

MOST people would find it very difficult to interest themselves in the effects of deferred maintenance in the abstract, but now that these effects have become sufficiently concrete to concern the movement of coal traffic during this winter, attention is at once aroused. The inability of the railway companies and wagon-repairing firms to secure sufficient labour to repair wagons has received somewhat less than its due attention during the war, but now it has a vital bearing on the movement of coal. The Minister of Fuel & Power is endeavouring to secure an additional output of 8,000,000 tons of coal between November, 1945, and April, 1946, although at the moment it is not clear whether this tonnage is expected to be additional to the output during the comparable months of 1944-45, or whether it is to be additional to an estimate the Minister has made of the probable normal output during the ensuing six months.

In any event, it is unfortunate that there are now something

like 90,000 railway wagons and 66,000 requisitioned wagons under and awaiting repair, representing increases of about 35,000 and 25,000 wagons, respectively, since November last year. The wagons under and awaiting repair already occupy well over 600 miles of railway sidings, and as the number of such wagons has steadily increased during the year, their storage has necessitated a good deal of otherwise unnecessary haulage and hindered traffic operations. This diminution in the number of wagons available for use is very regrettable in present circumstances and it would be unfortunate, to say the least, if the movement of coal supplies were hindered by shortage of wagons.

We gather that special steps are now being taken to improve the position. Additional labour is now being directed to the railways but, welcome though this is, it would have been of much greater value in the present situation if it had been supplied six months earlier, and if the numbers were considerably greater. We also learn that further to assist the movement of coal, instructions recently have been given that the use of railway end-door mineral wagons and requisitioned wagons is to be confined to coal class traffic and merchandise traffic in classes 1 to 6 (which includes such commodities as iron ore, limestone, etc.) except where it is necessary to use them for imports traffic loaded, direct to collieries, or cement.

As a substantial amount of general merchandise traffic hitherto has been conveyed in these wagons, this alteration should appreciably assist the movement of coal but, conversely, it will make the position for general merchandise wagons correspondingly more difficult. If the adoption of this restriction does not enable sufficient empty wagons to be supplied for coal traffic, and no other form of transport is available, the use of railway end-door mineral and requisitioned wagons for merchandise traffic in classes 1 to 6 will be further restricted to the conveyance of exports, traffic required for housing, and surplus Government stores which are being moved to facilitate the restart of industry.

A good deal of traffic, however, is dealt with in private sidings at Government factories, depots, etc., where the railways do not control the loading operations and it will be necessary to ensure that similar instructions are fully operative at such places. Further, the discharge of coal wagons is generally not the responsibility of the railways, and the transport of coal could be increased if some acceleration could be effected in the unloading of coal wagons by consignees. If this work could be performed on Saturday afternoons and Sundays during the winter, a step which might necessitate assistance being afforded by the Government both in connection with unloading and delivery, it would have very beneficial effects on the turn-round of wagons. Coal is also being conveyed at present by road, canal, and sea transport, but the railways are carrying the bulk of the traffic, and their greatest need is additional labour. It is hoped that this will continue to be forthcoming and that all the various interests will co-operate in securing the greatest possible movement of coal before the advent of unfavourable weather conditions which are usually experienced in February.

L.M.S.R. Change in Locomotive Practice

THE new developments which have been evolved from various trials and experiments on the L.M.S.R. in connection with the new arrangement of the smokebox and the new designs for grate and ashpan are significant to all who are concerned with locomotive performance in this country. They should be considered as three inter-related modifications to established British practice, and all are introduced with the primary aim of reducing very greatly the time required for the disposal of locomotives after their arrival at running sheds.

Readers familiar with practice in the Dominions, Colonies, and in foreign countries will observe at once that no originality could be ascribed to (and certainly it is not claimed by) the L.M.S.R. in its decision to adopt these improvements. It is frankly admitted, in fact, that the desirability of doing so was directly emphasised by war conditions which, first, accentuated the need for self-cleaning smokeboxes, self-emptying ashpans, and rocking grates, because of the poor coal, heavy loads, and long hours in steam then predominating; and second, witnessed the arrival in Great Britain of a number of American locomotives in which the three design features just referred to could be studied in actual operation. As a result of adopting these

effective aids to the disposal of locomotives, the time required for dropping the fire and emptying the ashpan has been reduced to some 5-10 minutes and this reduction in time is accompanied by a great saving in manual effort. A smokebox which can be "forgotten" for some 12-16 days is indeed something new in this country, but in view of the efficiency of the self-cleaning principle it cannot but make a great appeal to British locomotive engineers.

A study of American locomotive smokeboxes reveals a far wider diversity of types than has existed in this country. This fact is partly due to the wide variety of fuels burned, but in part can be ascribed also to differing practice in regard to superheaters, feed-water heaters, and the location of the regulator. The typical American smokebox has a very small door indeed, generally about one-half of the external diameter of the smokebox itself; and the front sheet of the smokebox on each side of the door is often used as a location for air compressors for the Westinghouse brakes. Clearly the smallness of the door itself implies that access to the smokebox is not to be regarded as a frequent necessity. There is admittedly a proprietary design of smokebox (the Okadee), in which the whole of the front, including the compressors located on it, can swing round horizontally through an angle of about 100 deg., but this is not intended to be a substitute for the normal small-size door, which in this case appears as usual in the central position.

The rocking-grate design now adopted for future L.M.S.R. construction is far in advance of the types previously used in this country, in which a small hinged section at the front is swung downwards when it is desired to clean the fire. In the old type, movement is provided by operating a screwed rod or shaft which in many cases seems to have an extraordinary affinity for dirt, thus making the operation tedious, especially when a spanner has to be used to turn the screwed rod. We understand that in America certain types of rocking grates are shaken by admitting steam to a small cylinder conveniently situated; this is an idea which might well be worth a fair trial in this country.

Ashpans have been a rather neglected feature of locomotive design in the past. They are nearly always very difficult to work into the main design; generally they are required to be quite subservient to the overriding factors of firebox proportions and location of trailing wheels. Usually their shape and proportions are merely the result of seeing what remaining space the ashpan can be crammed into, after the location of the boiler has been decided on. Difficulties were encountered by L.M.S.R. designers who tried to adapt the self-emptying ashpan to existing designs, so that a compromise has been reached by retaining the "straight" (vertical) sides of the British type, whilst introducing suitable flap doors through which the ashes can be emptied.

The saving in time to be expected from the incorporation of these three features into British practice provides in itself a convincing argument for their adoption. There are further advantages which can be enjoyed concurrently, which go so far as to make what at first sight is a group of labour-saving devices into an urgent economic necessity, especially in view of the present fuel situation. A glance inside the smokebox of any ordinary locomotive in this country probably will reveal that several rows of tubes in the lower portion of the tube-plate are thickly lined with soot; and those quite at the bottom are likely to be of negligible value as heating surface. Most of the evaporation, then, takes place over the reduced number of tubes that remain in reasonably clean condition, so that their life is reduced; a sharper blast is necessary for maintaining steam pressure; and a correspondingly great amount of coal is wasted. A self-cleaning smokebox will ensure that all tubes contribute usefully to the evaporation of boiler water; tube wear and tear will be reduced and tube life lengthened.

Of course any innovation in established practice will have its advocates and its critics. We have ascertained what some of the criticisms may be. There will be some who will contend that the extra moving parts involved, all of which will need attention, will add to maintenance. In a narrow grate the greater amount of coal burnt per sq. ft. of grate may cause trouble. Bad firing is now adjusted by the use of the pricker. It will be much easier to rock the grate; but this will let good as well as bad coal into the ashpan. We believe that the American 2-8-0 locomotives recently working on British railways with their better fireboxes, rocking grates, etc., had a greater coal consumption per mile than the

British 2-8-0 austerity locomotives. But no doubt the L.M.S.R. locomotive engineers are fully prepared for any such criticisms that may arise. As stated in the opening paragraph in the article on p. 535, the *raison d'être* for these innovations in British practice is just part of the continuous effort to obtain increased availability from the steam locomotive.

New South Wales Government Railways

AN advance summary of the annual report of Mr. T. J. Hartigan, the Commissioner for Railways, New South Wales, shows that during the year ended June 30, 1945, these railways showed a profit of £6,903,928 on their operations. Adding the £800,000 which the New South Wales Government annually grants towards losses on working of country development lines gives a total profit of £7,703,928. Out of this sum the interest on capital, with exchange and loan management expenses, absorbed a total of £6,136,608 and a sinking fund contribution of £1,152,000 (which included £129,583 debited to working expenses) was made. After deduction of all statutory debits a surplus of £544,903 on the year's working was shown. In describing this result as satisfactory, the report points out that railway operations were greatly handicapped throughout the year by a serious coal shortage, the prevalence of severe drought conditions over most of the State, and the reduced volume of rail traffic in New South Wales due to the steady northward movement of military activities. Total earnings were £2,924,055 less than the record amount for the previous year. Nearly £2,280,000 of this was on account of reduced goods tonnage carried. Earnings from refreshment room services decreased by £53,882, but revenue from sales of electrical energy increased by £45,058. Some comparative figures are given in the accompanying table:—

	1943-44	1944-45
Miles open	6,127½	6,127½
Passenger journeys	250,565,758	254,099,105
Total miles run	46,267,115	43,066,673
Operating ratio, per cent.	79.81	78.14
Percentage return on capital	£4 11s. 8d.	£4 10s. 9d.
Capital expenditure	152,144,668	153,099,820
Earnings	34,501,192	31,577,137
Working expenses	27,535,343	24,673,209
Profit on working	6,965,849	6,903,928
Surplus after charges	754,054	544,903

Amounts totalling £13,200,000 have been specially debited to working expenses during the past five years as reserves for various contingencies, such as maintenance of track, re-modelling accommodation, maintenance of existing and provision of new rolling stock and equipment, payment for accrued and accruing holidays and for an additional two months' long service leave to employees, and loss by depreciation in value of materials purchased to meet war emergency conditions. The practice of placing surplus earnings to reserves has been queried by the Auditor General. It is expected that a Bill for the validation of such reserves made by the Commissioner for Railways will be enacted by Parliament at an early date.

The conveyance of 1,804,000 military personnel required 3,718 special passenger trains, and there were also 379 special goods trains of military equipment. In addition to the latter a much greater tonnage of military equipment and supplies was carried by ordinary goods trains. Ambulance trains ran a total of 56,687 miles.

Despite every endeavour to reduce coal consumption to an absolute minimum, the unsatisfactory coal position necessitated the withdrawal for more than eight months of sleeping accommodation, and severe cuts in both passenger and goods services. During the past five years restricted coal supplies have resulted in the elimination of 30,405 trains from the timetables. Due to drought conditions, the movement of rolling stock was particularly heavy during most of the year under review.

Among the major works with which considerable progress was made during the year were the quadruplication of the line between Lidcombe and Penrith, the duplication of the line (including the five-mile deviation) between Otemundra and Junee, and the replacement of the Hawkesbury River bridge. Eight suburban cars and 75 goods wagons were built in the workshops, and 60 goods wagons, 121 goods wagon underframes, and one express passenger locomotive were built by contractors.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Steel Prices Rise Likely

London, W.4. November 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the editorial under the above heading in your current issue you state, only too truthfully, that so far there has been no serious attempt to link higher wage rates with greater productivity. As I mentioned in my letter to you in your issue of October 12 the prevailing economy in our country is "something for nothing" which is a brand of socialism (so-called) which just will not work without ultimate ruin to those who practise it. A most telling rebuttal of this corrupted form of socialism is just now being given in our midst, at Dorland Hall, Regent Street, W.1, by the Society for Cultural Relations between the Peoples of the British Commonwealth and the U.S.S.R. There, amongst a splendid collection of cartoonist art is a life-size photograph of two Soviet workers superimposed on which is the following caption: Article 118—Constitution of U.S.S.R. "Citizens of the U.S.S.R. have the right to work, that is, are guaranteed the right to employment and payment for their work in accordance with its quantity and quality." That, then, is the fundamental principle upon which the Russian Soviet peoples have built their success and not on the illusory equality doctrine so cherished in certain circles in this and other countries.

Yours faithfully,
"VIGILANT II"

Electrification of the Schwarz St. Viet-Spittal Line to Villach

R.E. Mess, Longmoor.

November 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the October 12 issue of *The Railway Gazette* you gave a map of the railways of Austria and stated that the electrification of the Schwarz St. Viet-Spittal line had been extended to Villach. Having just returned from the latter place, I thought you might like to know that the electrification from Spittal to Villach has not yet been done, although all plans are ready, and provided the necessary material is forthcoming, the job will then be undertaken.

Yours faithfully,
W. H. S.

Austrian Railways

Edinburgh. October 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Having recently returned to this country, I have read with interest the various notes on the Austrian railways which have appeared in recent issues of *The Railway Gazette*. I was the first British officer to establish control over the activities of the former Reichsbahn Direction at Villach and subsequently spent some time as DADn (Operating) on the Tn HQ staff there.

It would be particularly interesting to know from what source you received the information that electrification of the Taureren line had been extended from Spittal to Villach because this is definitely not the case. Work on this extension certainly was in hand but only preliminaries, such as a certain amount of civil engineering work, laying of underground cables to replace overhead telephone and telegraph circuits, etc., had been done. No overhead traction equipment had been erected; materials for this were on order but had not arrived although the Austrians thought that production had started. The operating value of the completion of electrification to Villach will be considerable and steps were being taken to have the work resumed and pushed forward as rapidly as availability of materials would allow. The possibility was also being considered of undertaking the electrification of the short section from Villach to Tarvisio but this is more in the nature of a long-term project, as no preliminary work had been done and it was understood that additional sub-station capacity would be needed.

The Austrian railways, in the British-occupied zone at any rate, have not suffered such serious structural damage as those in Italy and considerable energy has been expended by the local staff in getting repair work started. Steps were being taken to reconstitute the Austrian Federal Railways (OeBB) organisation but this project, like others in Austria for the good of the country as a whole, is dependent on agreement, both in principle and detail, between the four occupying Powers. In the meantime, however, staff of German nationality were being returned to Germany and Divisional headquarters had been set up at Linz, Villach, and Innsbruck under American, British, and French influence respectively. (Under the Reichsbahn organisation the original Austrian Innsbruck Division, of course, had been

abolished). As a temporary measure the Villach Division became responsible for all lines in the British occupied zone, this including all parts of the former Vienna Division to the west of the Semmering Tunnel.

Yours faithfully,
J. C. H. B.

The "Paget" Locomotive

1, The Valley Green, Welwyn Garden City,
Herts. November 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Locomotive engineers everywhere must feel that the excellent account of the "Paget" locomotive given in your issue of November 2, is of quite exceptional value. To-day, however, a good deal of its technical interest has been transformed by the passage of time into historical and human interest. It is perhaps not so surprising that the value of the locomotive itself was written off as a dead loss, as that no attempt whatever was made to profit from the information that its construction and running could have afforded. The standard locomotives of that day were by no means so wonderful as to justify the complacent view that there was nothing to be learned from an experimental locomotive.

On the other hand, I think you are rather hard on the Midland Railway authorities in your editorial article. Family influence is not a sound backing even when, as in this instance, it favours a man so richly endowed with outstanding ability. The thing one is most disposed to criticise is the subsequent secrecy, as we now see that technically there was nothing to be ashamed of in the locomotive. When I was a pupil at Derby in 1923-24 it was almost with a feeling of surreptitious guilt that I looked at some of the drawings, and in the shops the engine had already become a legend surrounded by impassioned stories of how this person or that could have made it a success, but was not listened to.

The most significant feature of the locomotive, in my view, is the arrangement for exhausting the steam. This is where contemporary locomotives were so weak, and the fact that the Paget engine attained over 80 m.p.h. with full load, presumably on the level track between Derby and Leicester, suggests that the design realised to some extent its potential advantages.

Comparison with internal-combustion engine design suggests that some such arrangement might well have developed parallel with poppet valves had Paget not tried to do too many things at once. One is tempted to go into details, but it would take up excessive space; it might, however, be observed that to embody two concentric rotating elements within the steam chest was a hazardous arrangement which could probably be avoided, so halving the mechanical problem which seems to have led to the abandonment of the whole project.

Yours faithfully,
E. L. DIAMOND

Recent Locomotive Designs

Montevideo. October 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your correspondent, Mr. P. C. Dewhurst, in his letter published on September 14, agrees that, and to use his own words, the "combined relationship of the cylinder tractive force and the steaming capacity of the boiler"—obviously a correct procedure when the fuels are similar; therefore, on this basis, he must also agree that the pull-speed curves and the comparisons found thereby are correct when the British and American austerity locomotives are used as oil-fuel burners, both of which are constructed to burn either coal or oil-fuel.

However, Mr. Dewhurst goes on to contradict his own statement by saying that this is by no means the case because the fireboxes of the other engines are not of a pattern "particularly" suited for oil-fuel, as is, "naturally" the C.U.R. boiler.

As can be seen from the illustrations, the fireboxes of all three engines are of orthodox coal-burning patterns, the only noteworthy difference being the slightly increased depth of throat plate of the C.U.R. proposed engine relative to boiler diameter, this being achieved by adopting a "between wheels" firebox, at the expense of a greatly reduced grate area.

It is observed that Mr. Dewhurst makes no allowance in his calculations for any improvement in steaming capacity of either of the austerity engines when burning oil-fuel, and it is hardly necessary to add that many locomotive engineers and railway officials know that the output of locomotives in general is raised from 10 to 15 per cent. when using oil-fuel as compared with coal firing.

It may, therefore, be definitely concluded that both the American and the British austerity engines give a much improved pull-speed curve over that of the C.U.R. proposed engine when

analysed on the basis of either coal or oil fuel; in fact, their ratio of rated tractive effort divided by equated heating surface is so much better than that of the C.U.R. proposed engine, that they are capable of giving an equally good, if not better, comparative performance on coal than the C.U.R. proposed engine on oil fuel; the respective ratios under this condition are 12·7, 12·9, and 13·1.

The writer feels indebted to those readers who have interested themselves in this article and the subsequent correspondence thereon, to make some explanation regarding the discrepancy which exists between the total evaporative heating surface as given by Mr. Dewhurst in the article describing the C.U.R. proposed engines in *The Railway Gazette* of March 9, and that used by the writer in the table of fundamental factors of design in *The Railway Gazette* of September 7.

It is obvious that such a flue-tube evaporative heating surface of 2,132·5 sq. ft. published in Mr. Dewhurst's article could not possibly be attained on a boiler of such dimensions, therefore the writer made reference to a previous publication about the C.U.R. proposed engines in the *Revista de Ingenieria*, Uruguay, in which detailed information respecting number and sizes of flues and tubes was to be found.

The two descriptions of boiler heating surface are given below:

	As described in <i>The Railway Gazette</i> , March 9, 1945	As described in <i>Revista de Ingenieria</i> , Feb., 1945, and used in calculations
Flue tubes ...	2,132·5 sq. ft.	1,642 sq. ft.
Firebox ...	154·0 "	154 "
Syphon ...	34·5 "	35 "
Total evaporative H.S.	2,321·0 "	1,831 "

Perhaps Mr. Dewhurst can confirm that the correct figures have been used in the calculations.

Yours faithfully,

THOMPSON FAIRLESS

"Advice Abounding"

H.Q. No. 3 Railway Operating Group,
Royal Engineers, B.A.O.R.
November 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I feel bound as a Commanding Officer to comment on the article "Advice Abounding" in your issue of October 26. Your contributor appears to have allowed his immensely ironical wit to pour public ridicule on the Army Education Scheme, without considering the relative propriety of so doing at the present time.

Officers and N.C.Os. throughout the Army are devoting a good deal of time and thought to stimulating discussion on topics of interest among those shortly being discharged to civil life. I say advisedly "stimulating discussion" because the object is to encourage men to think for themselves, rather than to instil knowledge, which in the absence of expert assistance is seldom practicable at unit level. In these circumstances, the conclusion which may be reached by any given discussion group is not of importance beside the fact that the members had some mental exercise in reaching it.

Your contributor's suggestion that members of the services return to civil life believing themselves to be in possession of "all the answers" does not really bear examination.

Most officers recognise that there is a fundamental difference between the military approach to any given problem, and the civilian approach, namely, that in war, speed in attaining the desired object justifies the subordination of all the considerations, personal, financial, or economic, which in peacetime conditions are largely governing factors. On the other hand, I would ask your contributor to realise that if the Army had insisted on the long practical experience which he suggests is a necessary basis for successful administration, we should probably still be floundering in the Normandy mud, instead of having completed a victorious campaign and being now in a position to demobilise an increasing number of men each month.

Yours faithfully,

W. BRYAN DRAPER,
Lt.-Colonel, R.E.,
C.O. H.Q. No. 3 Rly. Op. Group, R.E.

Indian Railway Staff Changes

The General Manager,
Great Indian Peninsula Railway,
Victoria Terminus,
Bombay. October 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the Railway News Section at page 247 of *The Railway Gazette* dated September 7, 1945, it has been notified that Mr. D. H. Hewitt, Deputy Chief Mechanical Engineer (Carriage & Wagon) of this railway has been granted one year's leave, preparatory to retirement, as from January 15.

Mr. Hewitt has only been given one year's combined leave, but this leave has not been granted preparatory to retirement.

I shall, therefore, be glad if you will amend the notification accordingly.

Yours faithfully,

R. B. EMERSON

Conditions on French Railways

London. November 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your article on railway improved conditions in France is, I think, a little too optimistic.

Without detracting in any way from the magnificent and difficult job performed by the S.N.C.F. men, one can say that French railways are running even now a skeleton service. A glance at the winter timetable just issued by Chaix will show that on main lines the number of trains is roughly 20 per cent. of its pre-war volume. On branch lines there are no trains on Sundays; on main lines one train every other day, and at best one train a day.

So travel conditions in France are still very far from normal and it will take quite a good time, much work, and unremitting efforts, before our railways achieve full rehabilitation, and it is a point that I wish our British friends would always keep in mind when discussing French economics, which are still hampered by lack of proper transport, as a country cannot live with 20 per cent. or 25 per cent. of its transport system in operation.

Very truly yours,

P. DE MALGLAIVE,
M.Inst.T.

Publications Received

Universal Directory of Railway Officials and Railway Year Book, 1945-46.

London: The Directory Publishing Co., Ltd., 33, Tothill Street, Westminster, S.W.1. 8½ in. × 5½ in. 586 pp. Price 20s. net.—Unexpected delay in production, resulting from a fire at the printing works at Edinburgh, have caused this standard work of reference to be published later than usual, but the delay has enabled the volume to be revised far more thoroughly than otherwise would have been the case, and in the light of post-war conditions. The present edition, with which the work begins its second half-century of continuous publication, is thus the first post-war edition in contents as well as date. It should prove at least as valuable as its predecessors in containing within the scope of 600 carefully-

condensed pages, more comprehensive lists of officers, and particulars of railways throughout the world, than can be obtained from any other publication in any language. (See also editorial note, page 526).

A Dictionary of Metallography.—

By R. T. Rolfe. London: Chapman & Hall Limited, 37, Essex Street, W.C.2. 8½ in. × 5½ in. 243 pp. Price 15s.—The contents of this useful handbook are arranged alphabetically. The information given, however, has been expanded where necessary so that some parts of the book take the form of an encyclopædia. All branches of physical metallurgy are covered, including the atomic structure of metals, constitution, micrography, and macrography. The book also deals with the various processes to which metals and alloys are subject in manufacture; the additional heat treatments which are commonly

applied; and the tests used to ensure the suitability of the finished products for various duties.

Railway Signalling Equipment.—A

brochure of 28 pages, 9½ in. by 6 in. profusely illustrated. Issued by the Siemens & General Electric Railway Signal Co. Ltd., East Lane, Wembley, Middlesex.—This brochure contains an excellently selected series of photographs depicting a wide range of power and other signalling equipment and a number of installations of different kinds, in which the various pieces of apparatus have been applied. The products shown are typical of the best practice in the industry and have been used in many parts of the world. The illustrations are accompanied by short descriptions and explanations, covering their main features, with French and Spanish translations alongside.

The Scrap Heap

"GRADIENTS EASY—POPULATION IMMENSE!"

A typographical error of a curious character occurred in one of the London papers of this week. In the advertisement of the Swansea & Hull Railway, the letter E was substituted for U in Hull. The prospectus went on to state that "as the passenger traffic from Swansea to that locality was so extensive, no doubt could be entertained that the line would prove most remunerative."—From *"The Scotsman"* of November 8, 1845.

A CHIROGRAPHIC FEAT!

An unexpected rush of military traffic recently disclosed resourcefulness on the part of the lady booking clerk at Brackley, L.N.E.R. Without notice, 500 repatriated servicemen were brought to the station by road 36 minutes before the 5.6 p.m. northbound train was due to leave and by which all the men required to travel to various destinations. Mrs. Barbara Field, the booking clerk was not dismayed but took the situation in hand quickly by telephoning for chirographic help to write out the tickets so that by the time the express arrived each man was supplied with his ticket.

100 YEARS AGO

From *THE RAILWAY TIMES*, Nov. 22, 1845

ONE HUNDRED AND FIFTY POUNDS REWARD.—Several Threatening Letters (believed to intimidate and to obstruct just) upon the subject of the railway robberies, and the prisoners Garratt and Maynard, and the actions for Wareham and wife, per Fennell, Child, and Kelly, Maynard's Solicitors, having been sent to Mr. Nash, in different writings, on 23rd August, 25th September, October 4, 13, 15, 22, 24, and November 10, (see similar extracts of some of which appeared in the *Times* of 22nd October and 20th November, from *Times* of 31st, and *Railway Director* of the 24th October.) Her Majesty's Government authorise a reward of £100, and Mr. Nash will pay an additional £50 for such information and evidence as may lead to the discovery and conviction of the writer or writers of said letters. Apply to the Commissioners of Police, Scotland Yard; Superintendent Pierce, H Division Metropolitan Police; Mr. Roe, Guildhall Court, or Mr. Nash, Frederick's Place, Old Jewry, at Mr. Stevens, Solicitor to the Great Western Railway.



"I was just going to say there's plenty more behind, but I was forgetting this is the last to-night. Sorry . . ."

[Reproduced by permission of the proprietors of "Punch"]

We live in a time where everything that is not forbidden is obligatory.—Major-General G. S. Szlumper at the annual luncheon of the Retired Railway Officers' Society.

TRAVEL À LA MODE

The proposal to renominate Highland railway stations by putting their Gaelic names on signboards deserves serious attention among those concerned with the comforts of the travelling public. If carried into effect it would make even the most tedious journey an affair of exhilarating confusion and excitement. Since the proportion of passengers who have the Gaelic is small, a journey to the Highlands will have something of the adventurous uncertainty of going on *shikar* on the Asiatic plateaux. If stationmasters and porters take to speaking Gaelic, the scene will be one of agreeable mystification.

Best of all will be the spectacle at the big terminals when the lady announcers describe the departure of trains to Inverness and the Kyle of Lochalsh. The phonetic complexities of the Gaelic language will assure an interesting time for all.—From *"The Scotsman"*.

FISH ON THE UNDERGROUND

For a quarter of a century the electric motors which keep the wheels of London's Underground turning have been maintained at Acton Works. During the war the facilities at these works were made available for electric motors on active service.

Many such motors were received; starting motors for naval launches, pump and hoist motors for craft of every description and generators for tank landing craft were among the newcomers to this section of Acton Works during the three years before the Normandy landings.

No longer did the motor shop telephones announce priority for a reconditioned armature for the motor which failed under the load of the last Stanmore train as it bore its home-going theatre crowd northbound between Piccadilly and Oxford Circus the night before. No longer was it possible to anticipate the machine type and even the fault, and have the replacement ready for instant despatch to the running depot.

"Albert Dock speaking—No. 3 hoist motor for ship 4 shed 16 is on the way to you. Repair wanted immediately as No. 4 sails tomorrow. Will collect at 8 a.m. and instal at sea."

Now there are hoist motors and hoist motors—small and large—some with bar windings, some wire-wound. In wartime they are of varied design and made in many places. Motors from Stafford, motors from Schenectady, even motors cannibalised from parts of unknown origin. This was the foreman's worry as he replaced the telephone.

"Better test it before stripping out," he said, as a 5-ton crane lifted the machine out of the lorry and dumped it on the workshop floor.

The tester scratched his head as he put down the testing leads. "Curious result," he said. "I thought that Piccadilly Line motor which gave trouble at Hamersmith a week ago was unusual under test, but I've

RAILWAY QUESTIONS AND ANSWERS

Statement: The cold, cheerless waiting rooms of most country stations are a disgrace, and remain as relics of Victorian travel.

Answer: The improvement of stations is in the forefront of the railway companies' policy. In the years before the war hundreds of railway stations were rebuilt or modernised, and the design and standard of comfort of the waiting rooms were specially considered in those rebuilding plans. Stations like Leamington, Cardiff, Swansea, Leeds, Doncaster, Luton, Margate, Ramsgate, Surbiton, Richmond, Exeter, and Waterloo, are a few examples of stations which the companies had the opportunity to modernise. As the railways carry out their large-scale modernisation plans after the war, such "cold, cheerless waiting rooms" as still exist, will all disappear.—From *"Answers to Questions and Statements,"* issued by the British Main-Line Railway Companies, 22, Palace Chambers, London, S.W.1.

never struck anything like this. I can get no reading at all across the terminals; there must be an open circuit, and yet both test badly to 'earth'."

"Strip it out," replied the foreman, "and let's have a look."

Slowly the armature was withdrawn and from the motor case and as the foreman and tester watched it they saw—not a broken brush rocket or insulator, but a flat fish!

L.N.E.R. H.Q.1 Closes Down

The L.N.E.R. Headquarters staff has left The Hoo, Whitwell, which was the wartime H.Q.1 of the company, and has returned to London. A staff farewell party was held at The Hoo on November 2, and the programme contained the following verses by "Buckeye":—

Close by those reeds, of Mimram's oozing stream,

L.N.E.R. has well preserved its cream. There, stands a structure of majestic frame,

Which from the neigh'ring Hampden takes its fame.

Here Railway Rulers oft the fate decree Of Specials, and the likes of you and me. Here thou Great Newton! whom three

Realms respect, Doth sometimes counsel take—sometimes reject.

Hither the typists and the clerks resort, To plan awhile the torments of transport.

In various ways th' instructive hours they while;

How run the trains? or, what's the net ton mile?

One checks the journey of the Flying Scot, And one decides where it should stop; or not.

A third produces minutes by the hour For Officers their contents to devour.

Thus days and nights merge into months and years

And exiles ponder what a fate is theirs. Six years and more, the typists come and go;

If Paradise be lost, they've found the Hoo.

When Spring is over, Summer has its day. Autumn will pass, but Winter's there to stay—

To I.C.I. from Hampden is not far For those whose route is by L.N.E.R.

But as some reach the parting of the ways There surge nostalgic thoughts of happy days.

But hold! The fight is o'er; begone dull care,

A Totem must be hoist in Dorset Square Which shall proclaim to all men of good

will L.N.E.R. is out to serve them still.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Railway Development at Pretoria

The Union Minister of Transport, Mr. F. C. Sturrock, stated recently that Pretoria's share in the railway reconstruction programme amounted to nearly £5,000,000. When the programme was completed it should be possible to supply Pretoria with a first class service. He was having an inquiry made into the methods of handling through passenger traffic from Pretoria. Improvements would be made to ensure comfortable travelling for passengers to or from Pretoria on the south-bound main-line service. More coaches would be available and delays in Johannesburg would be obviated.

Pretoria Station would be improved and the new railway workshops would be of modern design. A great part of the work had been completed. More than £1,000,000 had been spent in the last year, including £376,000 on the locomotive department and marshalling yard at Capital Park; £250,000 on re-modelling the yard at Pretoria West and providing a goods yard at Potgieter Street, and £350,000 on the new line from Hercules to Koedoespoort, with the necessary junction requirements. Conditions would be improved still further when the whole scheme for Pretoria West and Capital Park, which would need another £300,000, was completed.

At centres such as Pretoria, Johannesburg, and Reef areas, Cape Town, Durban, Bloemfontein, Kimberley, and elsewhere, the railway department was taking account of the rate at which the population, mining, agriculture, industry, and commerce were moving forward. After six years of war, progress was not always as rapid as desirable, but the Administration was going forward as quickly as supplies and other circumstances permitted. The works he had mentioned were only a minor part of the proposed improvements. The Pretoria programme included doubling the line from Mitchell Street to Cordelofs and quadrupling the Pretoria-Hercules line. This work would cost nearly £350,000. The Rissik line from Pretoria to Richards Street would be lowered, and the building of a subway at Vom Hagen Street and bridges at Soutter, Mitchell, and Church Streets and Delfos Road were other works designed to eliminate level crossings. This would cost more than £100,000.

The cost of new railway workshops would be £2,200,000, and the erection of quarters for construction staff, maintenance stock, stores, and a new nursery at Capital Park would need a further £27,000. Other features of the programme were the proposed transport building and the new railway hotel.

First Pilot Tug Built in Durban

The Mayoress of Durban, Mrs. S. J. Smith, named the first pilot tug to be built in Durban at a ceremony held in Durban Harbour in the presence of Mr. F. C. Sturrock, Minister of Transport, on October 25. The tug was named *Harry Cheadle*, after Mr. Cheadle, who occupied the position of Port & Shipping Director at Durban during the difficult war years. A second pilot tug was named *C. H. Hamilton*, after the late Colonel Hamilton, who died suddenly in Cape Town early this year, also while occupying the position of Port & Shipping Director. Mr. Cheadle had a meritorious career in the railway service, having been Superintendent (Operating) in Durban, and afterwards System Manager at Johannes-

burg. At the request of the Government of India he was one of the members of a committee to examine the position of the Indian State-owned railways to suggest means of improving their finances. He was a member of the Railway Service Commission. He was acting as Quartermaster-General of the Union Defence Forces when selected for the position of Port & Shipping Director at Durban towards the end of 1941.

Pilferage and Claims

Last year the railway police dealt with 36,803 reports of loss of goods and pilferage. Claims paid out amounted to £212,962, but in 11,177 cases the police successfully traced missing items. The total value of goods recovered was £74,243. Prosecutions for theft were instituted in 2,484 cases (454 Europeans and 2,030 non-Europeans). The number of unsolved railway theft cases appears to be decreasing, but for some years the police have been working at below establishment strength. The position is now being rapidly adjusted, and the positive steps which are being taken to counteract thefts and petty pilfering are at last producing concrete results.

South African Airways

By earning £11,242 in the week ended September 29, South African Airways set up a new record. The previous highest was £10,634 in the week ended May 19, 1945. Total earnings in four weeks in September amounted to £40,757, also a record.

WESTERN AUSTRALIA

Government Tramways Financial Results

The financial results of the tramway system operating in Perth and suburbs and controlled by the Commissioner of Railways indicate a surplus for the year ended June 30, 1945, after payment of working expenses and interest, of £32,102 compared with a surplus of £36,846 for the immediately preceding year. Earnings for the year were £507,509, compared with £515,304 in the previous year; and working expenses were £427,099, a reduction of £3,397 compared with 1943-44. Increased traffic due to the war had reached its peak in 1943-44. The operating ratio for 1944-45 was 84.16 per cent., compared with 83.54 per cent. for the previous financial year.

Car-mileage amounted to 5,079,812, a decrease of 141,343 compared with 1943-44. Passengers carried numbered 52,034,053, a decrease of 2,635,269.

The total amount debited to the capital account was £1,244,437. No extensions were made to the system during 1944-45; rolling stock was increased by one trolley-bus.

Additional Garratt-Type Locomotives

Reference was made in *The Railway Gazette* of March 17, 1944, to ten Garratt-type locomotives which were built in the Western Australian Government Railways workshops and placed in service on those railways. The locomotives have proved eminently successful in operation, and it may safely be said that but for their acquisition the Railways Department would not have been able to deal satisfactorily with the heavy traffic of the past two years.

The locomotive position in Western Australia is acute, due to the age and obsolescence of a number of the engines in service, and new units are urgently required. On account of the easement of the war

situation, further Australian Standard Garratt-type locomotives, which originally were built to reinforce the position of the 3-ft. 6-in. gauge systems in Australia at a time when the creation of a reserve of haulage power was an urgent necessity, have become available for general purposes; and it was decided recently that fifteen of these engines should be obtained for Western Australia, so that the State now has twenty-five in all.

The additional engines were built in the eastern states of Australia and transported to Western Australia by rail. On account of breaks of gauge, they could not be transported intact, and they were accordingly dismantled and conveyed in three sections on flat top wagons to Kalgoorlie, the Western Australian junction of the 4 ft. 8½ in. gauge Commonwealth line and the 3 ft. 6 in. gauge Western Australian system.

CANADA

Passenger Travel Position

The reduction of railway fares for excursions or week-end trips would not be resumed this year, but it was hoped that traffic conditions would permit the removal of the restrictions by January 15 next, the Dominion House of Commons was informed on October 4 by the Minister of Transport. In the course of his statement to the House the Minister said that for some years it had been found necessary, to assure the maximum use of railway facilities for the prosecution of the war, to suspend or cancel certain reduced fares for holiday and excursion travel which in normal times had been afforded by the Canadian railways. There were in force Orders prohibiting reduced fares for Dominion or provincial holidays, week-ends, and parties of ten or more; cancelling special tariffs of reduced rates or fares covering agricultural exhibitions, celebrations, coach excursions, horse races, organised excursion parties and other special fares; cancelling bargain fares, eastern to western Canada, prairies to Pacific coast, and certain conventions; and suspending home visitors' fares and summer tourist fares.

The Canadian railways reported that the movement of the Armed Forces was taxing their facilities to capacity, and that in September the capacity of their equipment had been exceeded. He expected that the return of Service personnel from Europe to Canada would continue over the next few months in sufficient numbers to require the maximum use of all available trains, accommodation and operating crews. The repatriation and demobilisation of the Armed Services placed a great strain on the operation of the Canadian railways, which during the war years had shouldered the increased burden of transport demands with vigour and efficiency. Great credit was due to the railways for their important contribution to the war effort and final victory.

In addition to that expected movement, he continued, a large number of British prisoners of war and internees from the Pacific would travel across Canada, and that would require much railway equipment; but it could be effected advantageously by the use of sleeping-car equipment returning from the Pacific coast.

During the period of demobilisation it behoved the public to refrain from unnecessary travel. He expected that during December the railways again would be called on to handle inbound troop movements through the port of Halifax, necessitating longer hauls for

equipment. December was ordinarily an unusually heavy month for the railways on account of Christmas holiday travel, and the additional movement of Service personnel might tax them beyond the capacity of their equipment.

UNITED STATES

A Record in Grain Shipment

One of the greatest preoccupations of American railways during the past year has been to find sufficient wagons for the movement of the 1945 harvest. Despite the vast scale of war transport, in the first 34 weeks of 1945 the movement of grain in the United States was the greatest on record. During this period, 1,748,348 bogie wagons were loaded, beating the previous record of 1,691,640 wagon-loads, in 1943, and far above the pre-war record, that of 1929, which was 1,605,640 wagon loads.

Lines to Serve New Virginian Coalfield

The opening of a new coalfield in Virginia has prompted plans for the construction of railways to a total length of 29 miles, and at a total cost of \$4,775,000, to give access to the mines. The pits are those of the Clinchfield Coal Corporation. One line, 14½ miles long, is to be built by the Atlantic Coast Line and Louisville & Nashville Railroads, joint lessors of the Carolina, Clinchfield & Ohio Railway System, which will work the branch. This line, from Fremont to the Lick Fork mine, will cost \$2,000,000; it will include four tunnels, one nearly ½-mile long.

The first two railway companies mentioned above opposed the application of the Chesapeake & Ohio Railway to build the other branch, as it admits that line into an area not previously served by it; but the objection was overruled by the Interstate Commerce Commission. The Chesapeake & Ohio branch is to be from Jenkins, Kentucky, to the Meade Fork mine; this also will be 14½ miles long. It will cost \$2,775,000, and will include a tunnel over ½-mile in length.

Gradients on both branches will be limited to a maximum steepness of 1 in 50 compensated, and curvature to not less than 6½ ch. radius.

Rock Island Realignment Scheme

The Interstate, Commerce Commission has authorised the Chicago, Rock Island & Pacific Railway to proceed with its main-line realignment scheme between Floris and Paris, Iowa, mentioned in the October 26 issue of *The Railway Gazette*. This will reduce the distance by 1½ miles, the rise and fall by 129 ft., the steepest gradient from 1 in 98 to 1 in 100, and the sharpest curvature from 22 ch. to 88 ch. radius. The cost of the scheme is estimated at \$1,690,255.

Diesel Streamliners for the "Exposition Flyer"

Next on the list of leading American long-distance trains to change over to streamline stock with diesel power throughout is the "Exposition Flyer," operated jointly by the Western Pacific, Denver & Rio Grande Western, and Chicago, Burlington & Quincy Railroads between San Francisco and Chicago. This route has considerable scenic attraction, including the Feather River Canyon through which the W.P.R. main line is carried, and the spectacular Moffat Tunnel route of the D.R.G.W.R., attaining an altitude of nearly 10,000 ft. in the tunnel between Salt Lake City and Denver. For a daily service in each direction six complete trains are needed, comprising 60 vehicles

of stainless steel. The Rio Grande and Western Pacific are to spend \$3,000,000 jointly on diesel-electric locomotives to provide for the haulage of the train west of Denver. The Burlington already works the train between Chicago and Denver by diesel power, and this railway will continue to provide diesels as previously from its diesel pool.

MEXICO

Increased Demurrage Charges

The consignees of goods in full wagon loads were publicly notified on August 11 by the Traffic Manager of the National Railways of Mexico that, as from August 17, only 24 hours free of demurrage would be granted them. For the 24 hours following the free period the charge has been increased to 30 pesos a car (previously 10 pesos), and for every subsequent 24 hours or fraction thereof to 100 pesos a car (previously 30 pesos). Furthermore, the railways reserve the right to undertake the discharge of the merchandise, in accordance with the tariff of demurrage in force, and to levy storage charges thereafter.

The notice stated that this measure was necessary in view of the failure of merchants to ensure the rapid discharge of their merchandise, and was fully authorised by the Ministry of Communications & Public Works in accordance with the powers conferred by the Federal Executive during the emergency situation.

COLOMBIA

Proposed Western Railway

Much interest is being expressed in the Colombian press in the proposal for a railway to give service to the western half of the Republic. The projected route extends for 1,063 km. (660 miles) from the city of Popayan in the Department of Cauca (in southern Colombia) to the Caribbean seaport of Cartagena, following generally the valley of the Cauca River. The line would be known as the Ferrocarril Troncal de Occidente and would include the existing 573 km. (356 miles) of departmental and national railways running from Popayan to Anza in the Department of Antioquia, and 80 km. now under construction in the Department of Bolivar. The cost of the unbuilt portions (410 km., or 255 miles) and the partly-completed portion is estimated at 45,800,000 pesos.

Although the National Congress has not yet taken the projected Ferrocarril Troncal de Occidente under consideration, the Department of Bolivar is sending commissions to the other Departments through which the proposed railway would pass in an effort to obtain co-ordinated action and approval on the project by the respective Departmental Assemblies. If approvals are granted, these departments may undertake to complete the railway without the aid of the National Government.

AUSTRIA

Railway Connections with Switzerland

In connection with the restoration of the Arlberg Express, linking France with Austria via Switzerland, representatives of the Austrian and Swiss railways recently have examined the possibilities of intensifying railway connections between Austria and Switzerland. It is hoped to establish a temporary passenger shuttle service between Feldkirch, on the Innsbruck-Bregenz line, and Buchs, the Swiss frontier station on the Zurich-Coire main line. As soon as possible the goods traffic, too, is

to be re-established between the two countries, limited, as far as Austria is concerned, to Vorarlberg and Tyrol only. For the resumption of the direct Austro-Swiss railway traffic the authorisation of the French Governor-General at Innsbruck will have to be obtained. When the bridge over the Inn river, near Brixlegg, to the east of Innsbruck, has been restored, probably by the middle of November next, traffic is to be extended as far as the eastern demarcation line of the French zone of occupation.

SWEDEN

Railways Results for January-October, 1944

The working receipt of the Swedish privately-owned railways for the first ten months of 1944 amounted to kr. 132,600,000 compared with kr. 133,600,000 for the same period in 1943. Against this decrease, working expenditure rose to kr. 101,600,000 (kr. 96,900,000). The working surplus was thus reduced to kr. 31,000,000 (kr. 36,700,000). Combined allocations to renewal fund totalled kr. 9,100,000 (kr. 8,400,000). After providing for other charges, the combined net profit was kr. 11,900,000 (kr. 18,500,000).

RUSSIA

Railway Plans

A new freight locomotive, *Victory*, is the first post-war model produced by the Kolomna locomotive works near Moscow. It has been approved for mass production in the next five years. It embodies the latest achievement in locomotive construction. Although comparatively light, it is very powerful. It will yield an economy of 12 to 15 per cent. as compared with any freight locomotive built in the U.S.S.R. before the war.

The outline of the new Five-Year Plan for Soviet railway transport already can be discerned. For instance, freight shipments approximately will be doubled by 1950. Especially marked will be the increase in the share of the Urals and Siberia in the general freight turnover which will be connected with the future expansion of heavy industry in the eastern regions.

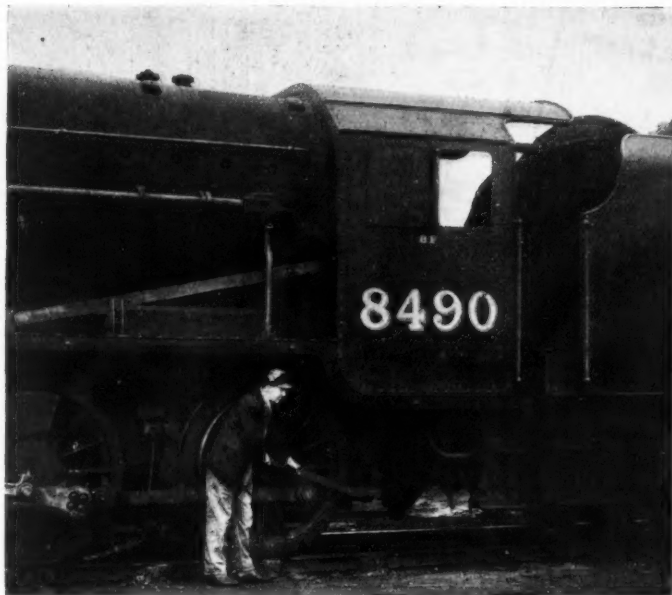
Railway transport plays an exceptionally important role in Soviet economy. Many extensions are planned between the central regions of the country and Siberia and the Far East, between Central Asia and Siberia, between the Donbas, the Krivoi Rog iron-ore basin and the Caucasus.

Restoration of lines wrecked by the Germans in the central, southern, and western regions will make heavy demands on labour power and materials. Together restoration and new construction work involves building 1,900 large and medium-size bridges, provision for the construction service and erection of dormitories for the workers, which means supplying a total floor space of 70 million cu. metres.

It is planned to introduce technical improvements which will speed up runs and give greater safety. Electrification of railways will be energetically pushed ahead and diesel locomotives will find greater application than formerly. Stations and roads will receive new signalling equipment. The automatic block signalling system will be extended to a further 6,524 miles of track. The existing locomotive works already have heavy orders for several years ahead. Similar orders for rolling stock will be placed with former tank factories.—V. VAVILOV.

Disposal of Engines at Motive-Power Depots

Adoption of the rocking grate, self-emptying ashpan, and self-cleaning smoke-box on L.M.S.R. locomotives



Engine fitted with rocking grate and self-emptying ashpan being cleaned over grid

IN the continuous effort to obtain increased availability from the steam locomotive, the time taken to dispose of the engines at the sheds after their turn of duty is done is an important factor. The term disposal covers the time between entering the shed yard and final stabling therein, and has hitherto included, on the L.M.S.R., taking on coal and water, cleaning or dropping the fire, and emptying the ashpan and smokebox. A normal allowance for this work is one hour per engine, and a further regular job after the engine has been stabled is cleaning the tubes which may occupy a further 45 minutes.

The L.M.S.R. recently has experimented with and finally adopted certain alterations in locomotive design which aim at very large reductions in disposal time, and these are described below, together with the results obtained. As a background it is proposed, first, to describe certain aspects of disposal procedure as carried out hitherto. At the end of each day's work in the case of passenger engines, and at intervals of up to a week with freight engines, the fire has to be dropped completely from the firebox. Intermediately, it is necessary for the fire to be cleaned by removing the accumulated clinker and ash. This can be done either by:

(a) Removing the fire or clinker by means of a long-handle paddle through the firebox door and depositing it on the line side;

(b) Removing a few firebars and pushing by means of a rake the fire or clinker through the space so formed into the ashpan; or

(c) Making use of a hinged drop-grate operated by a lever outside the firebox, and then following the practice as in (b).

In all cases the contents of the ashpan have to be raked through the damper doors into the pit beneath the engine. Method (a) above has been standardised on the L.M.S.R.

and these operations take about 20/25 minutes to perform during which the engine must be stationary over the ashpit. The use of a drop grate has been tried repeatedly during the last 18 years, but trouble has been experienced with warping of the door and its frame, and with its use it has still been necessary to break up the clinker before it would pass through. Whenever the fire is cleaned or dropped at the shed it is also necessary to clean the smokebox, which involves opening the door and shovelling out the ash into the pit or an adjacent bunker; up to 3 barrow loads or, say, 2 cwt. have often to be removed, and about 10 minutes is occupied in this work. Attempts have been made to mechanise this process, in the first place by using a portable vacuum ejector connected to the train pipe which would suck the ashes into a long tube and deposit them in an adjacent wagon; no time was found to be saved by this means. In the second place, certain engines have been equipped with a permanent fitting, known as the Royle-McCallum ash ejector, in which a number of jets of water could be set in motion inside the smokebox the scouring action of which swept the ashes into a common outlet pipe and directed them into an adjacent wagon: this apparatus is still, however, only in the experimental stage.

Method (a) described above has been the L.M.S.R. practice hitherto and was not under pre-war conditions found unduly onerous with the good quality of coal usually available and the relatively easy conditions under which the locomotives worked. War conditions bringing heavy loading, long hours in steam, and poor quality of coal have, however, drawn particular attention to this problem, and the introduction of 50 2-8-0 locomotives of U.S.A. design and construction on to the L.M.S.R. provided first-hand experience with three design features, common for many years on

American and Colonial railways, but hitherto not considered needful in British locomotive operation; these features are the rocking grate, the self-emptying ashpan, and the self-cleaning smokebox. Experience led to trials with these fittings on L.M.S.R. designs, and after a period of trial and experiment they are now being standardised on all new L.M.S.R. locomotive construction.

The rocking grate, illustrated on page 537, is generally similar to the American design. It is operated by a detachable lever in the cab, and the process of rocking the bars breaks up the clinker into small pieces and passes it, together with the ash, into the ashpan below.

For fire cleaning purposes the bars are divided into two groups, and in the narrow type of firebox these are located in the front and back halves of the box respectively, and can be rocked independently. This allows the good fire to be raked on to the stationary portion whilst clinker and ash are passed through the moving portion. An improvement over the arrangement which was applied to the American locomotives running in this country has been the securing of the bars to their operating pins by means of split pins, so that the bars cannot lift while crushing the clinker. Because all narrow fireboxes must be roughly the same width inside, it has been possible to design a single bar element which can be used in any type of engine, and where wide fireboxes are used two elements of exactly the same design are used alongside one another, but in this case the left and right side respectively can be rocked independently. Thus only one type of grate bar is required to be stocked at motive power depots for renewal purposes.

The self-emptying ashpan, shown on page 537, has solved a particular problem. When designing a locomotive it is possible to dispose axles, brakshafts, and other details so as to leave a clear space for a hopper-shaped ashpan which may be closed at the bottom by a flap type door of the design common in American practice. Great difficulty was experienced, however, in arranging this on existing locomotives, first, because adequate slopes could not be obtained on the ashpan sides to make it fully self-emptying, and, second, because brake beams interfered with the free egress of the ashes through the hopper bottom. The hopper aspect has been abandoned, therefore, and a straight-sided ashpan retained, the floor of which has been provided with flap doors, clearly seen in the illustration, which could be operated by appropriate rods and levers outside the firebox. The foregoing arrangement was in use on the German State Railway before the war, and by enabling the present form of ashpan to be retained it has solved the difficulty of application to existing narrow firebox engines. As a matter of interest this type of ashpan was first applied to an engine of L.M.S.R. design on the 2-8-0 locomotives supplied to the Turkish Railway Administration during the war. Fig. 1, on page 536, is a diagrammatical sketch showing the rocking grate and self-emptying ashpan in operation together.

The whole time taken in dropping the fire and emptying the pan is from 5 to 10 minutes. Besides the saving in manual effort, a considerable saving in shed line occupation results, for if at a given shed 12 engines per hour are coming into the shed for disposal, and if each must stand for 30 minutes on the ashpit, then 6 engines must be stationary on the ashpit line at any one time. In a mechanised yard where a grid has been provided at one point, beneath which a hoist is arranged to lift

(Continued on page 541)

Disposal of Engines at Motive-Power Depots

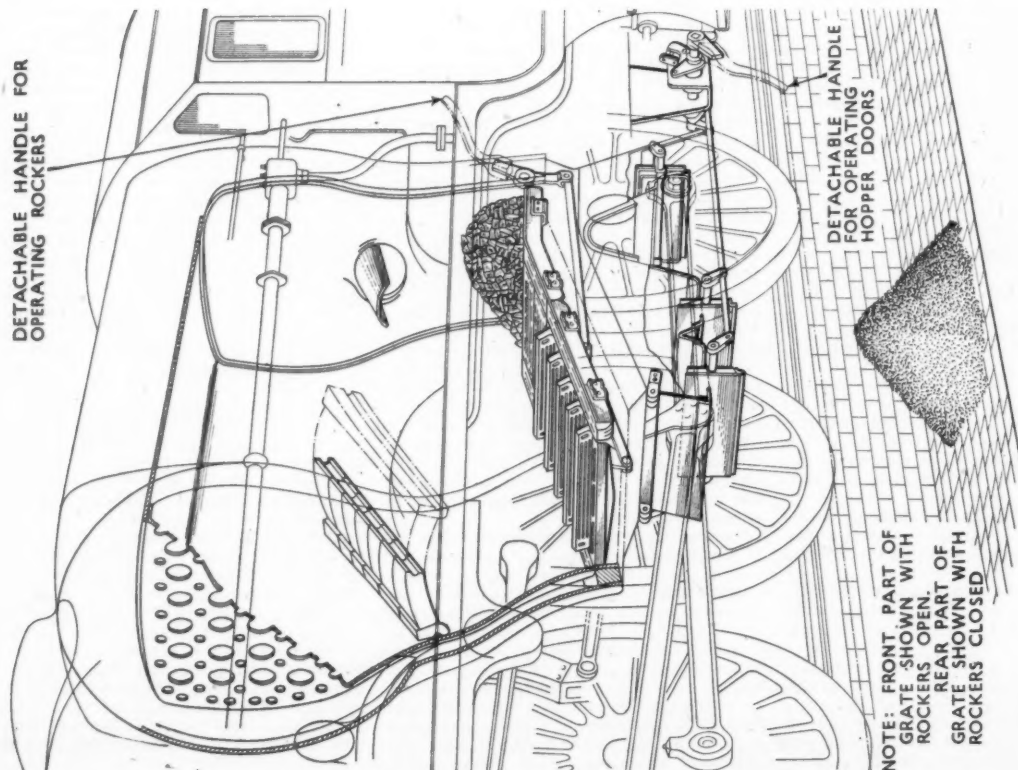


Fig. 1—Diagram of the rocking grate and self-emptying ashpan

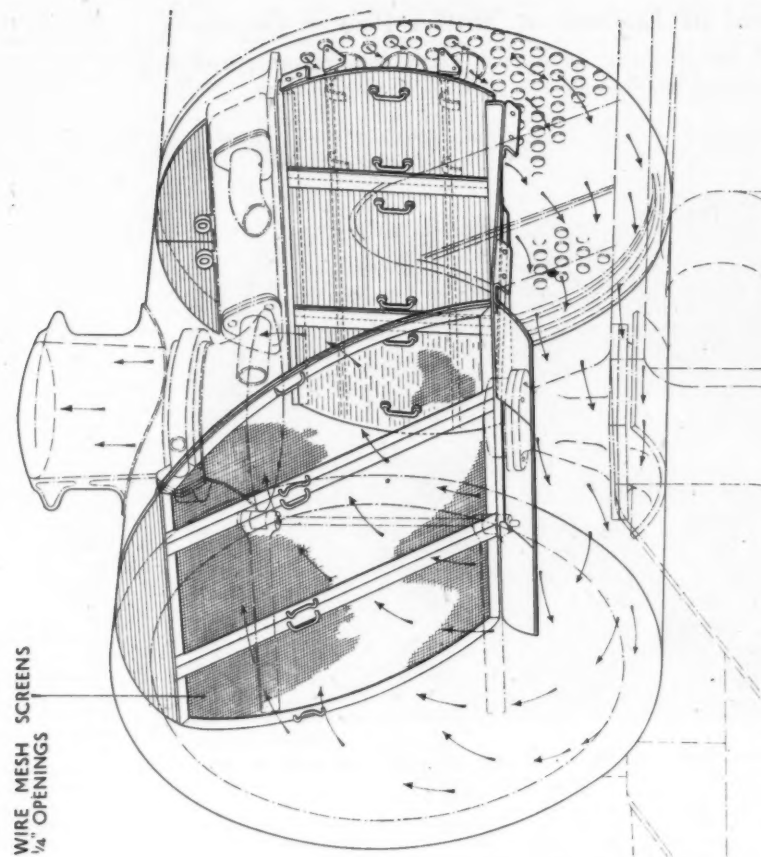
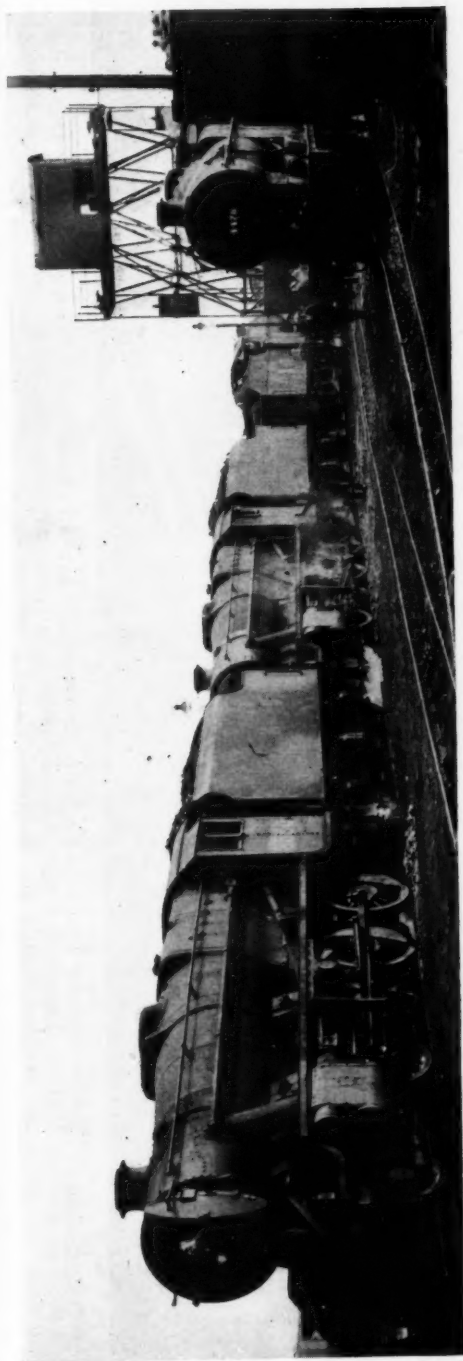


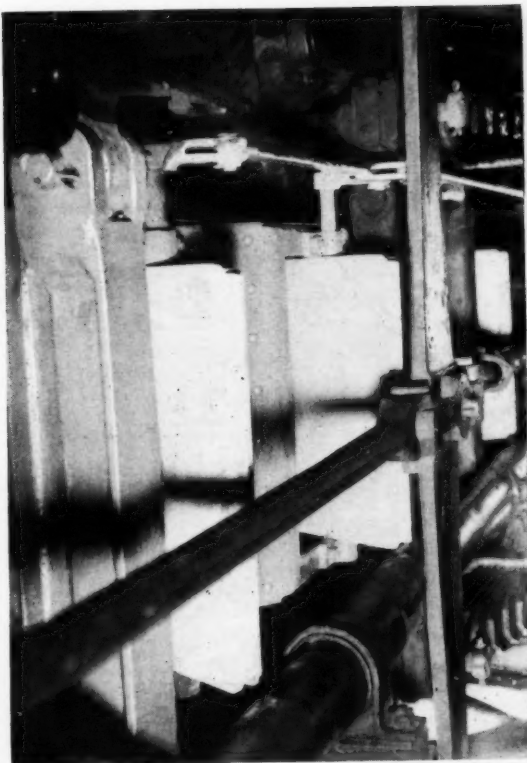
Fig. 2—Diagram showing arrangement of the self-cleaning smokebox



Locomotives lined up on ashpit for disposal under the old conditions



View in locomotive firebox showing front portion of rocking grate opened



View under the locomotive showing the three butterfly doors in the bottom of the ashpan open

District Line Air Raid Damage near St. James's Park in 1941



A view taken on May 13, 1941, in the District Line tunnel between St. James's Park and Victoria Stations, facing westward. This section sustained air raid damage on May 11, 1941, including debris from the collapsed roofs and walls of buildings above the railway. It was found necessary to suspend all train services between St. James's Park and South Kensington, although the damage was confined to the section illustrated. Service was resumed on May 21

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RAILWAY NEWS SECTION

PERSONAL

Mr. G. E. Cuffe, at present Director-General of Railways, Calcutta Area, has been appointed General Manager of the Bombay, Baroda & Central India Railway, in place of Dr. H. J. Nichols, whose appointment to the Railway Board was recorded in our November 2 issue. Mr. Cuffe will take over charge early in December from Mr. W. R. Maunder, at present Officiating General Manager of the B.B.C.I.R.

Mr. Hubert Bolton, District Goods Manager, Gloucester, Great Western Railway, who, as recorded in our November 2 issue, has been appointed District Goods Manager, Newport, joined the company in the Goods Department at West

Board; Development Association of the Royal Forest of Dean; and the council of the Gloucester & County Chamber of Commerce. His distinctions in the study of railway subjects include First Prize in Railway History & Economics at the Birmingham School of Commerce, 1922; he was awarded the G.W.R. Certificate for exceptionally efficient First Aid rendered in 1914, and holds the 25 years First Aid Efficiency Gold Medal.

Mr. Wilfred Lampitt, Assistant District Goods Manager, London, Great Western Railway, who, as recorded in our November 2 issue, has been appointed District Goods Manager, Gloucester, joined the company at Paddington Goods Station in 1907, and subsequently gained experi-

At a meeting of the board of the Canadian Pacific Railway Company in Montreal, on November 12, the Rt. Hon. Sir John Anderson, G.C.B., G.C.S.I., G.C.I.E., M.P., was appointed a Director, to fill the vacancy occasioned by the death of the Rt. Hon. Reginald McKenna.

Mr. Roland Henry Jones, O.B.E., M.Inst.T., who, as recorded in our October 12 issue, has retired from the position of General Manager of the Port of Bristol Authority, was appointed Assistant Manager of the Authority in November, 1918. He became Commercial Manager in October, 1927, and General Manager in April, 1932. Mr. Jones was made an O.B.E. in 1920 for special services rendered to the Ministry of Shipping. He is a Vice-President of the



Mr. Hubert Bolton

Appointed District Goods Manager, Newport, G.W.R.



Mr. Wilfred Lampitt

Appointed District Goods Manager, Gloucester, G.W.R.



Mr. R. H. Jones

General Manager, Port of Bristol Authority, 1932-45

Bromwich in 1904, and subsequently was transferred to Wednesbury, and then Birmingham, stations. He was selected for a four years' course of special training in 1922, and gained experience in the Goods, Traffic, Docks and Road Transport Departments; on completion he was attached to the Development Department of the Chief Goods Manager's Office, Paddington, and later in 1926 was appointed Goods Agent, Malvern Link. In 1928 he returned to Paddington on promotion to the Chief Goods Manager's Development Department, and, after a period of intensive training on the commercial side, was appointed G.W.R. Freight Agent for the United States & Canada, in New York, leaving this country in 1930. After two years abroad Mr. Bolton returned to London to become Staff Clerk in the Chief Goods Manager's Office. In January, 1936, he was made Chief Clerk to District Goods Manager, Bristol, and in August of that year became Goods Superintendent, Bristol, Temple Meads Goods Station. He was made Assistant to District Goods Manager, Bristol, in March, 1940, and District Goods Manager, Gloucester, in November, 1941. During his stay at Gloucester Mr. Bolton has served on the Gloucester & Sharpness Port Emergency Committee; Sharpness Development

once at stations in the London and Worcester Districts. Mr. Lampitt served with the Royal Fusiliers from September, 1914, to March, 1919; he spent the next few years at stations in the London District, and a period in the London District Goods Manager's Office. In 1932 he was transferred to the Chief Goods Manager's Office, where he dealt with special-working matters, and in 1938 he was appointed Assistant to Goods Superintendent, Bristol. On the outbreak of war, Mr. Lampitt was lent to the Ministry of Food, and served as Port Food Movement Officer (South Western Area), and as Railway Food Officer. In September, 1942, he was appointed Outdoor Representative, Chief Goods Manager's Office (Working Department). Mr. Lampitt was appointed Assistant District Goods Manager, London, in October, 1943.

Mr. Noel Ker Lindsay has been appointed Director of the British Non-Ferrous Metals Federation.

Mr. James Boot retired on October 31 from the position of Chief Engineer to Metropolitan-Vickers-GRS. Limited. Mr. J. C. Kubale has been appointed Chief Engineer to the company.

Institute of Transport, and past-Chairman of the Bristol & District Branch of the Institute. He is a member of the executive committee and of the sub-committees of the Dock & Harbour Authorities' Association. He was Vice-Chairman of the Severn Development Association during the life of that body; and is a member of the council of the Bristol Incorporated Chamber of Commerce & Shipping; Chairman of the Port of Bristol Employers' Association; Chairman of the South West Group of the National Association of Port Employers; and a Director of the National Dock Labour Corporation Limited. Mr. Jones was Chairman of the Bristol Port Emergency Committee from its inception.

Mr. F. F. Fowler is Chairman of the Rates Committee recently appointed by the Road Haulage Association Limited.

The executive board of the European Central Inland Transport Organisation has appointed Mr. E. R. Hondelink to be Director-General.

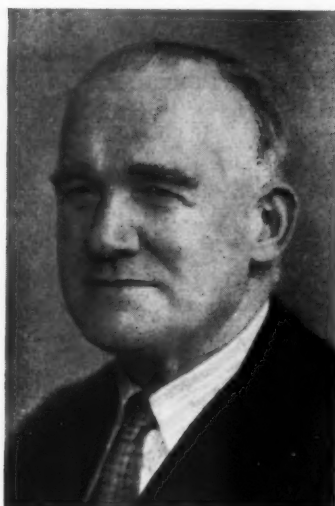
Field-Marshal Sir Harold Alexander and Sir Edward Victor Appleton have been elected Honorary Members of the Institution of Civil Engineers.



Mr. T. C. S. Haslam

Appointed Assistant General Manager,
Buenos Ayres & Pacific Railway

Mr. Thomas Charles Skeffington Haslam, M.Inst.C.E., M.Inst.T., who has been appointed Assistant General Manager of the Buenos Ayres & Pacific Railway, joined the Stores Department of the Bahia Blanca & North Western Railway in 1903. In the next year he was transferred to the Way & Works Department of the Buenos Ayres & Pacific Railway, and, after working as a junior on the construction of tramways, electric substations, station yards and buildings, he was appointed, in 1910, Assistant to the Engineer in charge of the construction of the Bahia Blanca—Patagones branch. In 1918 he was appointed Sectional Engineer in the Bahia Blanca district, and two years later became Assistant to the Divisional Engineer in Bahia Blanca. Between 1923 and 1928 Mr. Haslam was Constructing Engineer of various branch lines of the B.A.P.R., from which he resigned in 1929 to take up the post of Manager of the La Guaira & Caracas Rail-



Mr. J. G. Singer

Traffic Superintendent, Aberdeen,
L.N.E.R., 1939-45

way, Venezuela. In 1935 he was appointed General Manager of the Villalonga Express Company (Argentina), which post he relinquished in September, 1941, when he rejoined the Buenos Ayres & Pacific Railway, of which he has now been appointed Assistant General Manager. Mr. Haslam has been a member of the local committee of the Catalinas Warehouses & Mole Co. Ltd. since 1937, and is Vice-Chairman of the Villalonga-American Express Co. S.A., and Compania Internacional de Transportes Automóviles.

Mr. J. G. Singer, Traffic Superintendent, Aberdeen, L.N.E.R., who, as recorded in our November 9 issue, has retired from that position, joined the Great North of Scotland Railway in 1898, serving as clerk at various stations and in the head offices, including that of the General Manager, which he entered in 1903. In 1918 he was promoted Chief Clerk to the late Mr. George Davidson, General Manager. When the G.N.S.R.



Mr. E. W. Belcher

Appointed Assistant to General Manager
(Hotels & Ca. ering), Southern Railway

became absorbed in the L.N.E.R., Mr. Singer was appointed Chief Clerk to the Traffic Superintendent, Northern Scottish Area, L.N.E.R. He was appointed Traffic Superintendent, Northern Scottish Area, in 1932, and on the formation of the Scottish Area on January 1, 1939, he became Traffic Superintendent, Aberdeen District.

Mr. E. W. Belcher, M.B.E., who, as recorded in our October 5 issue, has been appointed Assistant to General Manager (Hotels & Catering), Southern Railway, was educated at St. Mark's School, Kensington, and later at the Westminster Hotel and Restaurant School. Mr. Belcher has held various positions in the hotels of the West End of London and the Provinces, at the County Hall, Westminster, and with Imperial Chemical Industries Limited. In January, 1939, he joined the War Department as a civilian expert in conjunction with the late Sir Isidore Salmon, and dealt with the catering for the Militia in July of that year and on general mobilisation at the outbreak of war. Commissioned as Major as from September 3, 1939, he assisted in the formation of the Army Catering Corps. Mr. Belcher was made an M.B.E. in 1941, for services in connection with the feeding of 200,000 members of the B.E.F. evacuated from Dunkirk. He was released from the Army in December, 1941, to join the National Service Hostels Corporation, which was set up by the Minister of Labour for the purpose of housing and feeding war workers, Bevin boys, members of the Merchant Navy and war damage repair workers. Mr. Belcher has been a member of the Committee of Management of Universal Cookery and Food Association for 11 years, and is Chief Examiner for City and Guilds of London Institute of Technology (Cookery). He is also Freeman and Liveryman of the City of London.

Mr. James Bridger, M.B.E., D.C.M., Assistant Divisional Superintendent, London Central Division, Southern Railway, who, as recorded in our October 5 issue, has been appointed Divisional Superintendent, London Central Division, entered the service of the former London Brighton & South Coast Railway in 1904 as a telegraph learner at London Bridge, and afterwards served as a signal lad in several of the signal boxes in the London area. In 1907 he was



Mr. James Bridger

Appointed Divisional Superintendent, London Central Division,
Southern Railway

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appointed Clerk to the Chief Goods Inspector at East Croydon, and in 1910 was transferred to the Special Traffic Section in the office of the Superintendent of the Line at London Bridge. At the outbreak of the war of 1914-18, Mr. Bridger was transferred to the Military Section for dealing with troops and munition trains for overseas. From 1916 he served in France in the Royal Engineers and attained the rank of Warrant Officer Class I; he was also awarded the Distinguished Conduct Medal. On return to civil duties in 1919, Mr. Bridger was transferred to the Freight Train Section, and on the amalgamation of the railways was appointed to a similar section in the London (East) Division of the railway at London Bridge. In 1927 he was appointed Assistant Stationmaster, Victoria, and subsequently became Yardmaster at Norwood marshalling yard and Selhurst depot. He was appointed Stationmaster at Guildford in 1935, also taking charge of Woburn, Worplesdon, and London Road Stations, and became Stationmaster at Victoria in June, 1938. He was appointed Assistant Divisional Superintendent, London Central Division, from October 1, 1943. Mr. Bridger was made an M.B.E. in the New Year Honours of 1943.

L.N.E.R. APPOINTMENTS

Mr. R. Thompson, who at present is filling the post of District Locomotive Superintendent, Newcastle, to be Assistant Locomotive Running Superintendent (Scottish Area).

Mr. C. J. Lamb, now Acting Assistant Locomotive Running Superintendent (Scottish Area), to be District Locomotive Superintendent, Burntisland, *vice* Mr. J. R. Fletcher.

Mr. W. L. Kelly, at present Assistant Passenger Manager (Scottish Area), to be Assistant Goods Manager (Scottish Area).

Mr. J. W. Barr, now Acting Assistant Passenger Manager (Scottish Area), to be Assistant Passenger Manager (Scottish Area).

We regret to record the death on November 3, in his 64th year, of Mr. G. J. Edwards, Chairman & Managing Director of Edgar Vaughan & Co. Ltd., Birmingham. He had been associated for the past 36 years with the oil and engineering industries.

The following officials of the United Kingdom Commercial Corporation Limited have been decorated recently by Decree of the Presidium of the Supreme Soviet of the U.S.S.R., for successful fulfilment of assignments in transporting war supplies and foodstuffs across Persia to the U.S.S.R. during the war:—

Director-General of the Transport Department of the Corporation in London: Mr. George Sinclair, with the Order of the Patriotic War (First Class). (Mr. Sinclair is now Deputy General Manager, Road Services, L.P.T.B.)

Chief Representative of the Corporation in Persia: Mr. William Larter, with the Order of the Patriotic War (Second Class).

Director of the Transport Department of the Corporation: Mr. John Ray, with the Order of the Red Star.

Chief of the Planning & Operational Department of the Corporation in Persia: Mr. Henry Adcock, with the Order of the Red Star.

Chief of Documentation & Accounting of the Corporation in Persia: Mr. Stanley Embury, with the medal "For Labour Valour."

Lord Wardington has decided to relinquish the Chairmanship of Lloyds Bank Limited, but will remain on the board. He will be succeeded, on January 1 next, by Lord Balfour of Burleigh, at present Joint Deputy Chairman of the bank. Lord Balfour of Burleigh is a Director of the London & North Eastern Railway Company.

Vickers Limited announces that Sir John Anderson, Sir Clifford Figg, Sir Thomas Merton, and Lt.-General Sir Ronald Weeks have joined the board. Sir John Anderson is rejoining the board, from which he resigned in November, 1938, on his appointment as Lord Privy Seal.

Mr. F. W. Lampitt (Chief Goods Manager, Great Western Railway) has been re-elected Chairman of the Goods Managers' Conference for 1946.

The late Rt. Hon. Harcourt Johnstone, who was Secretary to the Department of Overseas Trade, left (estate in Great Britain) £26,514.

The Secretary of the Department of Overseas Trade Development, after consultation with the Secretary of State for Foreign Affairs and the President of the Board of Trade, recently announced in the House of Commons that Mr. J. C. Hanbury-Williams, a Managing Director of Courtauld's Limited and a Director of the Bank of England, had agreed to lead a good-will mission to Egypt. The following have accepted invitations to serve as members of the mission:—Mr. John Brown, General Secretary, Iron & Steel Trade Federation; Mr. C. G. Morley New, Electricity Commissioner; Sir William Stanier, formerly Chief Mechanical Engineer, L.M.S.R.; Mr. Harold Whitehead, Industrial Consultant; and Dr. W. H. T. Williamson, Director of Agriculture Department, British Council.

BUENOS AYRES & PACIFIC RAILWAY

Mr. F. D. Taylor has been appointed Assistant to the General Manager for Personnel.

Mr. J. C. Lavandera has been appointed Commercial Assistant to the General Manager.

Mr. W. H. Taylor has been appointed Assistant to the General Manager in charge of General Matters.

Our attention has been called to the fact that in our issue of September 7 last, Mr. D. H. Hewitt, Deputy Chief Mechanical Engineer (Carriage & Wagon), Great India Peninsula Railway, was incorrectly stated to have been granted one year's leave preparatory to retirement. Actually, this leave is not preparatory to retirement.

TRIBUTES TO MR. H. A. SHORT'S WORK AT SOUTHAMPTON

On relinquishing the position of Docks & Marine Manager, Southern Railway, to become Deputy Traffic Manager of the company, Mr. H. A. Short has resigned from Southampton Harbour Board, of which he has been Chairman since April, 1944. Mr. Short had been elected to the Board in February, 1942, to fill a vacancy caused by the resignation of Mr. R. P. Biddle when the latter was appointed Deputy-Director of Ports under the Ministry of War Transport. The Harbour Board has decided to record its appreciation of the

efficient and courteous manner in which he carried out the duties of Chairman during a momentous period in the history of the port. Among tributes paid to Mr. Short was that of Major-General N. G. Holmes, who, speaking for the Services, thanked Mr. Short for the co-operation with, and consideration for, the Services. Southampton, said General Holmes, had done a monumental task. He added that the Americans particularly had asked him to associate them with his remarks and to thank Mr. Short and members and staff of the Harbour Board for the co-operation they had given the Services, particularly during the last two years.

Disposal of Engines at Motive-Power Depots

(Concluded from page 535)

the discharged ashes into an adjacent wagon, then it is necessary to manhandle the ashes deposited by the five other waiting engines along the ashpit lines on to the grid. With the new arrangement widely fitted, it is possible for every engine to discharge over the grid and a continuous flow of engines maintained past this point, thus eliminating what is frequently a serious bottle neck.

The illustration on page 537 shows a number of engines lined up on the ashpits under the old conditions and the illustration at the beginning of this article shows one of the new engines being cleaned over the grid.

The self-cleaning smokebox, Fig. 2, is a case where theory and practice do not agree. This arrangement has been well known to British engineers for many years, but its use has hitherto been passed by, first, because it seemed clear that a sharper blast would be necessary to overcome the increased resistance to the flow of gases when they have to pass under the diaphragm; and, second, because the diaphragm was considered to be a serious obstacle in the way of daily tube cleaning. Experience with the American engines, completely confirmed by application to L.M.S.R. standard designs, has shown that no alteration to the blast pipe is necessary and that steaming is actually improved by the self-cleaning front end. The explanation seems to be that the bottom tubes are always kept clear by the concentration of draught at the bottom of the smokebox so that use is always made of the full tube evaporative surface. A second, and unexpected, result was that with this arrangement the tubes do not need daily cleaning, so the difficulty of removing the plates while the engine is hot does not arise. It has been found possible to lay it down that engines so fitted shall not have their smokebox doors opened at all at less than 12- to 16-day intervals, coinciding with the X-day shed examination, unless some particular defect has been reported.

Experience has shown that even after three weeks without attention not more than 150 lb. of ash require removing from the smokebox, and this amount would not increase in a longer time, being that which is deposited initially to fill the dead corners of the smokebox. The tubes remain clean indefinitely and the plates are arranged to lift out in a simple manner to permit of the removal of plugs for washing out.

As already stated, the devices described are being fitted to all new construction on the L.M.S.R. and as their use extends, the contribution to improved engine availability is likely to be considerable. The advantages have turned out to be real, while the objections which have often been raised in the past to the use of such devices have been found to be of no importance.

Institution of Railway Signal Engineers

Discussion on running, jointing, and terminating cables

At a meeting of the Institution of Railway Signal Engineers held in London on November 2, with the President, Major R. Falshaw Morkill, in the Chair, a discussion on running, jointing, and terminating signalling cables was opened by Mr. A. W. Woodbridge, Member of Council, Assistant to the Signal & Telegraph Engineer, G.W.R.

Mr. Woodbridge began by referring to the freedom of choice available in railway work and the four ways most frequently met with of running cables, to suit varying conditions. Damage was an ever present risk and could take several forms, mechanical, chemical, electrolytical and so on. Nothing was 100 per cent. effective in eliminating such causes of failures. They looked to cable engineers to devise better methods of protection against outside influences. The growing use of steel for bridge construction gave rise to problems, as vibration was often very heavy and its magnitude probably not sufficiently realised. An experiment was being made with a cable having a rubber buffer between the armouring and the sheath.

Jointing of cables was an item presenting its own peculiar difficulties. Through joints formed of potheads in junction boxes with connecting links were expensive but provided convenient test points; with trunk communication jobs, however, this arrangement could occasion cross-talk. Bifurcating and trifurcating joints had proved useful where duct lines were already almost full; smaller cables on the main route were joined to a large multi-core cable in the duct, at each end. Referring to terminating, Mr. Woodbridge mentioned various designs of pothead and the difficulties sometimes experienced with them, as well as the design of the cupboards or boxes accommodating them. The methods of connecting between main signalling cables and the functions on the line were a subject for debate. Lightning arresters also appeared to call for improvement and it would be interesting to hear comments on their design and the experience obtained with them. There was so much diversity of practice that several opinions on each section of the subject he had introduced were sure to be forthcoming. The speaker also referred to the tendency to increase the strictness of cable specifications in the course of time and the advantages gained by getting rid of trunking a piping wherever practicable.

Mr. C. Carslake, Past President, in a communication, outlined the practice in the N.E. area of the L.N.E.R. Galvanised-wire armouring was thought to be preferable to steel tape, although both methods had their own advantages. Cables were buried in clay if possible, but where the run was in ash sub-soil a clay, sand, or chalk surround was provided. Timber top protection was used under tracks and steel pipe runs under points and crossings. In electrified areas, however, all cables were run on stakes to avoid risk of electrolysis. Concrete stakes and wrought-iron brackets, with not more than two cables per hanger, were usual. Cable ducts were much used in stations and could be provided at little cost when new platforms were being built. A duct conveying forty 40-core cables in addition to telegraph cables and an air main was constructed at York. Cables in ducts were not armoured; there were terminal chambers at the duct ends where connection

to armoured routes was made. The best and quickest method of running cables was from drums on wagons. The cost of running cables on stakes was found to be dearer than burying by approximately the costs of the stakes. The choice between burying or using stakes depended on suitability of ground, nature and position of obstructions and other details.

Mr. A. Moss said the subject was one of vital interest to the signal engineer as cable costs formed a large percentage of the cost of any installation. It was well worth every effort to arrive at the best methods, but no hard and fast rule was possible. Cast-iron ducts gave the best service, he thought. Surface troughing was exposed to water and dirt and the wooden variety got untidy easily. Concrete was better. The design of terminal tails was open to improvement.

Mr. T. Austin spoke of arrangements he had seen in Holland and Germany in which cables were taken right up to the lineside apparatus and the circuits distributed thence from a sealed terminal box placed on the ground.

Mr. A. King discussed the question of corrosion and the chemical and vibration resisting qualities of cables. Some progress had been made as regards the latter property. Pure lead sheathing had too low a fatigue endurance to be recommended for signal work. The so-called "D" alloy had much better qualities, but it was doubtful if it was a complete answer to the mechanical problem, and the chemical one still remained.

Mr. C. F. D. Venning said the general tendency was towards the buried paper insulated cable, as this was the most economical method. A drawback to it was the pothead and the cast-iron type was got out to meet the difficulties previously met with. The type of construction mentioned by Mr. Austin had not proved too satisfactory and had been modified. He had been surprised to hear mention of oil leakage having been a trouble, but perhaps the cable had been run above track level on an embankment.

Mr. L. J. Boucher, referring to buried cables in electrified areas, said that the Southern Railway had none and he would be very unwilling to see any. In running cables you had to take the best route available in the circumstances, no matter what you might like to be able to do. They used stumps and spreader boards and were turning more and more to the use of reinforced concrete troughing. Their practice was to have terminal boxes and run from them to the ground equipment. They found that satisfactory. They ran through intermediate boxes with the same number of cores and sorted out in the signal boxes, etc.; the arrangements were kept as simple and straightforward as possible. The weakest point in any such layout was the last link at the apparatus on the ground. Tail work needed doing better than in the past.

Mr. E. G. Brentnall thought it would be an advantage if some more general agreement on practice in the matter of running could enable the specifications to be simplified. Opinions varied considerably on the best way of running cables. His preference was for buried cables. As to using steel tape or wire armouring, advantages were claimed for each, but one could question whether either was really necessary. Lead-covered cables, suitably

protected against extraneous action—chemical and so on—should be satisfactory. It would be cheaper to protect externally rather than have the expense of surrounding a cable with chalk or clay. Multi-core cables were to be preferred, in his opinion to single cores. They were simpler to put in as a new length on a route; during the bomb damage days single wires proved a great nuisance. With 80 single wires it was hard to trace wires out but with a multi-core cable repairs were far more easily made. The "ite" type of wire for tails proved very bulky and if something taking up less space but having good insulating properties could be found it would be an advantage.

Mr. Van Hasselt spoke of the practice on the Netherlands Railways, with 1,500-volt d.c. traction, where signal and telephone cables combined, steel taped and armoured, were buried alongside the line. He was informed that no electrolytic or other trouble was experienced. Various sizes of cable termination boxes were used, wired up in the factory and fitted with tails and lid.

Mr. S. A. Stevens referred to the alkaline action produced when concrete ducts became wet and its deleterious effects. He also thought that the unfortunate platelayer was often unnecessarily abused, as from his experience with some cable fault-locators developed before the war, faults were almost invariably to be found in the potheads or joints. Speaking of lightning arresters Mr. Stevens said signal engineers would find something to interest them at the Physical Society's Exhibition.

Mr. W. J. Claridge mentioned the effects of corrosion and vibration and the various alloys employed for cable sheathing, incorporating cadmium, antimony and tin. Tin assisted in resisting corrosion, but it was not so valuable where vibration was met with.

Mr. L. R. Insley said that the conclusion reached by the British Electric Allied Research Association was not favourable to lead-antimony where there was risk of corrosion. He also referred to oil leakage and the use of a harder setting compound as a precaution against it. The difficulties associated with insulated sleeving on tails had perhaps now been got over, but although excellent tapes were available they became almost impracticable when there was a large number of cores, as there was no room for them in the boxes. An improved type of paper sleeving was being used which was oil impregnated and had excellent dielectric properties. An earlier type of sleeving showed a tendency to unroll. Vibration was a very real source of trouble and the signalling cable specifications took this into account; the so-called alloy B was recommended to resist vibration experienced on the line.

Mr. J. H. Currey alluded to the corrosion that attacked the lead when troughing of concrete or plaster type material was used. Solid timber supports gave probably the best protection against vibration. Combinations of stakes and spreaders for carrying cables short distances were often used to economise or allow for expansion. With the cable cleated down on timber it was enabled to take up expansion without distortion and keep free of vibration troubles. The speaker also mentioned some interesting experiments with P.V.C. coverings in severe conditions alongside water troughs.

Mr. F. Rose, speaking of Underground practice, said all cabling was carried above ground on posts or walls, at close centres for the supports, making them in

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effect continuous. They had nothing but 2-core cables, with opposite poles in them, to eliminate short circuit risks. If a fault occurred a fuse had to blow. Their experience with multi-core cabling had not been good and it had been done away with. He described the method of effecting termination work, which they had found thoroughly satisfactory. He was surprised to hear what some speakers said about trouble experienced with lead sheaths in concrete troughing. They had used such troughing where lead-covered cable crossed the tracks and a cable bridge was impracticable, but they had not experienced any corrosion troubles. They used plain lead and no serving over it.

Mr. A. T. Bridge said the practice of pre-wiring had been adopted for terminal cases in India, and in China in telephone work, to use skilled and unskilled labour, both to best advantage. A colour scheme was used which enabled unskilled men to make the correct joinings with the multi-core cables.

Mr. J. F. H. Tyler, in a communication, spoke of the relative merits of burying cables or providing some form of cable route. For the first method economy and freedom from damage by derailments was claimed. In certain classes of installation, however, one had to consider the possibility of alterations or additions being required; these would be more costly than if a prepared route had merely to be extended or diverted, as trenches would have to be opened up again. When installing, too, the trench work had to fit in with the arrival of the cables, so that the ground was open for the shortest possible period. Last minute alterations were very inconvenient. Burying at a large interlocking therefore seemed not to give the flexibility that was desirable. The cable, too, with its protective covering was expensive. Some armouring did not give as much protection as might be thought, and proper protection was vital. Soil had to be stable, as a slip would carry the cable with it and fracture it before the slip itself was regarded as serious. Then there were corrosion troubles to be reckoned with. In ash ballast some protective layer had to be provided, and even when a cable was buried further down corrosive substances could percolate from the ash ballast and do harm. Burying in rock or rock sand was in any case uneconomical. On electrified sections there was the possibility of the sheath and armouring carrying a portion of the traction current—thus increasing the fire risk under fault conditions—and a non-metallic sheathed cable had to be used or a route provided. A route could always be got ready well before the arrival of the cables and subsequent modifications presented little or no difficulty.

Mr. E. Steadman discussed the question of tough rubber sheathed cables and the effect of electrolysis on other types. He had had to decide some years ago on a choice of cables for use in the City of London and adopted the tough rubber type of multi-core. A 61-core cable along by the front of the Bank of England was blown out of the ground by a bomb and hooked to the railings nearby; it was the only cable to escape injury. There was a sheath of tough rubber with layer of canvas and another layer of tough rubber. A section was pulled out after 12 years' service and used elsewhere satisfactorily. The speaker also gave, in reply to Mr. F. Edwards, some details of sizes involved.

The President said that some years ago he put a tough rubber type cable in a very wet and dirty tunnel at Kings

Cross, London, where it had ever since given excellent service.

Mr. F. Horler, dealing with potheads for multi-core cables, observed that a cable should be well anchored to preclude strain on the wiped joint. A pothead should be sufficiently large to take the cable comfortably, especially if sweated tails were used, and should also enable the compound—which should be carefully selected—to be poured without forming air bubbles. The compound should be non-hygroscopic. It was important to be able to see clearly that everything was properly spaced and nothing twisted, and the terminals should be located so as to afford the straightest and shortest connection to them. Sleeving, if itself of sound make, seemed a simple and good arrangement. The use of "ite" tails tended to make things bulky. The pothead formed a vital point where, if a fault occurred, it was likely to be found.

Mr. R. Yardley remarked that the cable engineers present had not spoken of the so-called "sandwich" design, involving

layers of impregnated and unimpregnated paper, without excess of free oil in the finished product, useful in cases of inclined runs. He referred also to the care needed in using certain sleeveings to avoid diminished resistance after the compound was poured. Mr. A. King said that such a cable was not new.

Mr. H. E. Bradshaw referred to the use of both soft and hard compounds and breather spaces and the results obtained. Experiments had been—and were being—made to endeavour to solve the corrosion problem with lead sheathings. Tests had been going on for some years and were likely to be continued for an appreciable time. It would be premature to express any opinion yet as to the final result.

The President, closing the debate, moved a vote of thanks to Mr. Woodbridge for opening it and announced that the next meeting would be on December 7, when Mr. F. B. Egginton, Member, would read a paper entitled "Subsidiary Signals: Their Development and Some Problems arising from Their Use."

Repair of Greek Railways

When the Germans withdrew from Greece in October and November, 1944, they destroyed communication facilities with special ferocity, blowing up ports, roads, and railway bridges. On the section north of Salonika the amount of destruction per mile of line is among the highest encountered anywhere in Europe. Roads and ports were put into service again without much delay, but the railways were faced with the difficulty of having nearly all their serviceable locomotives and rolling stock at Athens and no physical means of getting them to the remaining lengths of railway where train services could be operated, because of the enormous bridge destruction in certain areas. This was indicated statistically in the article on "The Hellenic State Railways in War," by Mr. B. Leondopoulos, Acting General Manager, which we published in our August 3 issue.

The Peloponnesian Railway, for example, had lost the rail bridge over the Corinth Canal, and was thus cut off from certain lines in the south of the country which had remained intact. The British Army made delivery possible by loading two locomotives, two railcars, and a number of goods wagons on "Z craft" (diesel-engined har-

bour lighters) manned by Royal Engineers which made the sea voyage from Piraeus, the port of Athens, to Navplion (Nauplia), where a branch of the railway touched the sea.

At Navplion a landing ramp had been completed by the Germans nearly two years before, for some transfer of rolling stock of a similar kind; but news of their intention was given to British Intelligence officers by an engineer on the railway and the R.A.F. effectively put the ramp out of action two days before it was due to be used. The "Z craft" beached at one of the craters in the quay wall made by the R.A.F. bombs, and the locomotives and rolling stock were hauled by winch up the incline, which had been levelled and prepared for the purpose. Soon after, trains were running from Navplion up to Argos, Mycenae, and Corinth.

After this, transfer of other locomotives and rolling stock was arranged to Chalkis, on the Hellenic State Railways, and to Patras, in both cases by ships with specially powerful derricks. At Chalkis, where the locomotives had to be sent in parts for assembly on the quay, a workshop was completely improvised; the boiler and the frame were lowered by the ships derricks on to the wheels, which had been prepared on the quay.

L.P.T.B. New-Type "Pay-As-You-Board" Bus



A view of the latest-type "pay-as-you-board" bus, the third experimental vehicle introduced by the L.P.T.B. during the past year, to discover which type will best suit London's traffic needs. One feature is the separate entrance and exit

The Professional Engineers Appointments Bureau

The Professional Engineers Appointments Bureau invites applications for registration for employment from members who belong to the Institution of Civil Engineers, Institution of Mechanical Engineers, or Institution of Electrical Engineers, or persons whose engineering qualifications for election or admission to one of those bodies have been approved by the respective councils. Forms may be obtained from the Registrar of the Bureau, at 13, Victoria Street, Westminster, S.W.1.

Employers of professional engineers are invited to submit concise details of positions vacant on their staffs, indicating any special requirements, and the salary range offered. The membership of the board of the Bureau for 1945 is as follows:—

Chairman: Lt.-Colonel C. M. Norrie, D.S.O., B.Sc.

Civil: the President, Institution of Civil Engineers; the Secretary, Institution of Civil Engineers; Mr. A. S. Quartermaine, C.B.E., M.C., B.Sc.; Major W. H. Morgan, C.B.E., D.S.O.

Mechanical: the President, Institution of Mechanical Engineers; the Secretary, Institution of Mechanical Engineers; Sir William Stanier, F.R.S.; Lord Dudley Gordon, D.S.O.; Major William Gregson, M.Sc.

Electrical: the President, Institution of Electrical Engineers; the Secretary, Institution of Electrical Engineers; Sir Stanley Angwin, K.B.E., D.S.O., M.C., T.D., B.Sc. (Eng.); Mr. T. G. N. Haldane, M.A.; Sir Arthur Fleming, C.B.E., M.Sc.

Registrar & Secretary: Mr. R. W. L. Harris, B.Sc.

L.N.E.R. Harwich-Hook Steamship Service

On November 14 last, after a lapse of six years, the L.N.E.R. steamship service between Harwich (Parkeston Quay) and the Hook of Holland was restored. At 8 p.m. the "Hook Continental," hauled by 4-6-0 locomotive No. 8304, *Gazelle*, painted L.N.E.R. green and decorated with British and Dutch flags, left platform 9 at Liverpool Street Station on its first trip for Harwich (Parkeston Quay), where it was due at 9.40 p.m., in time for the departure of the ss. *Prague* at 10 p.m.

Before the departure of the train, His Excellency Jonkheer E. Michiels van Verduynen, the Netherlands Ambassador, the President (Mr. W. Hupkes), General Manager (Mr. van Rijkjevorsel), Chief Trains Officer (Mr. Posthumus Meyjes), and the Assistant Chief Traffic Manager (Baron van Haersolte), of the Netherlands Railways, accompanied by Sir Ronald Matthews, Chairman, Sir Murrough Wilson, Deputy-Chairman, and Sir Charles Newton, Chief General Manager, of the London & North Eastern Railway Company, inspected the train. Mr. A. H. Bibby, a Director, and the following L.N.E.R. officers also were present:

Messrs. O. H. Corble, Assistant General Manager (Ancillary Services), V. M. Barrington-Ward, Divisional General Manager (Southern Area), W. H. Johnson, Secretary, C. G. G. Dandridge, Passenger Manager (Southern Area), C. K. Bird, Goods Manager (Southern Area), L. H. K. Neil, Continental Traffic Manager, G. F. Fiennes, District Superintendent, Stratford, E. W. Rostern, Superintendent (Southern Area), Captain R. Davis, Marine Superintendent, Messrs. M. R. Bonavia, Assistant to Chief General Manager (Public Liaison), and George Dow, Press Relations Officer. Others present included Mr. J. M. A. Huns, First Secretary, Royal Netherlands Embassy; Major-General W. H. Grey, Managing Director, and Captain G. J. Bensink, Director, of Wm. H. Müller & Company, Rotterdam; Mr. J. Noest, represent-

ing the Zeeland Steamship Company; Mr. G. J. L. van der Lande, Chairman of the Netherlands Chamber of Commerce; Messrs. Ludo Pieters and W. Pieters, L.N.E.R. Agents in Holland; and Mr. John P. Taylor, Editor, *Shipbuilding & Shipping Record*.

The sailings are being maintained by the ss. *Prague*, and are as follow: to Holland: Mondays, Wednesdays and Fridays; from Holland: Tuesdays, Thursdays and Saturdays. The "Hook Continental" express maintains connections in each direction.

The outward journey times are:—

Liverpool Street	... dep.	8.00 p.m.
Harwich (Parkeston Quay)	arr.	9.40 p.m.
Harwich (Parkeston Quay)	dep.	10.00 p.m.
Hook of Holland	... arr.	7.00 a.m. (G.M.T.)
		(8.00 a.m. Dutch time)
Rotterdam	... arr.	9.37 a.m.
the Hague	... arr.	10.13 a.m.
Amsterdam	... arr.	11.25 a.m.

The inward journey times are:—

Hook of Holland	... dep.	10.15 p.m. (Dutch time)
Harwich (Parkeston Quay)	arr.	6.00 a.m. (G.M.T.)
Liverpool Street	... arr.	9.00 a.m.

Railways' Services to Civil Aviation

At the meeting of the Southern Railway Lecture & Debating Society held at the Chapter House, S.E.1, on Thursday, November 8, Mr. D. H. Handover, Air Adviser to the British Railways, gave an address entitled "Air Topics." Mr. John Elliot, Deputy General Manager, Southern Railway, Chairman of Great Western & Southern Air Lines Limited, and a director of Railway Air Services Limited, presided.

The Chairman said that Mr. Handover commenced his wide experience in air transport immediately after the Great war with Instone Air Lines, was subsequently Traffic Manager of Imperial Airways during the days of the company's great development, and for three years Traffic Director with B.O.A.C. Whatever the outcome as to civil aviation, the fact remained that Mr. Handover had rendered the greatest possible service to the railway companies during the past two years.

Mr. Handover, in his address, referred to the work of the railways since they obtained air powers in 1929. They had done a tremendous amount of work in the pioneering and development of air services since the first service was started by the Great Western Railway between Plymouth and Cardiff on April 12, 1934. They had always tried to get the best British aircraft. At the outbreak of war they were operating 80 per cent. of all internal services. When the railways started in aviation they did not proceed without guidance; from those early days until they could manage themselves they obtained the assistance of Imperial Airways, which operated for them and supplied pilots and engineering staff. The railway air organisation was now a magnificent piece of work which, even under difficult wartime conditions, had carried on services with a 95 per cent. regularity both in winter and summer; it had operated practically continuously and had flown over seven million aircraft miles, carried 300,000 passengers and over seven million lb. of freight.

Mr. Handover then referred to the planning work done by the Railway Air Committee since 1942 in connection with post-war internal and Continental services. After a request by the Lord Privy Seal (Lord Beaverbrook) in May, 1944, the railways submitted a comprehensive scheme for internal and Continental air services which involved a flying mileage of over 20 million a year. Mr. Handover thought

that if any proof of the efficiency of this plan was required, it was to be found in the fact that it was practically identical with the European company provided for in the proposals put forward by Lord Swinton in his White Paper.

In proposing the thanks of the meeting to Mr. Handover, Mr. Elliot said that quite a lot of people had asked why the railways wanted to get into the air. There was no question of wanting to get there; they had been there from the time when internal air transport began in earnest, and during the past twelve years they had gained wide experience.

The Dendy Marshall Railway Collection

On Tuesday, November 13, Messrs. Sotheby & Company disposed by auction of the Dendy Marshall Railway Collection of books, autograph letters, prints, maps, and pottery, relating to railways and locomotive engines. The collection was concerned mainly with the early period of railways and unusually high prices were realised for some of the scarce items.

A collection of 38 books and pamphlets on the atmospheric railway, sold as one lot, which included the earliest description of this method of travel, by Medhurst in 1810, secured £52. Among its items were reports of Robert Stephenson on the proposed adoption of the system on various railways in the south of England, together with reports of Parliamentary inquiries into the system. This collection was bought by Francis Edwards Limited, the bookseller.

Letters on the invention of engines, believed to have been written by the Marquis of Worcester in 1651, realised £24. A large folio copy of the history of the Great Western Railway by John C. Bourne, containing 2 maps and 49 plates, printed in London in 1846, fetched £20.

Several items were purchased for the Science Museum. These included a first edition of "A Descriptive & Historical Account of the Liverpool & Manchester Railway," by Joseph Kirwan, published in Glasgow in 1831, for which £10 was paid; Rastrick's "Rainhill Notebook," a manuscript notebook containing particulars of the Rainhill locomotive trials sold for £58; Mark Searles' "Turnpikes and Tollbars," containing 12 coloured plates and 515 other illustrations, £8; the Stockton & Darlington Railway report of 1818, which sold for £11; and William Strickland's "Reports on Canals, Railways, Roads & other subjects," containing engraved plates of the 1812 Leeds-Middleton Railway and Stephenson's early locomotive, bought for £15. The last-named was the first technical work on railways to be published in the U.S.A.; it was published in Philadelphia in 1826.

A History of the Manchester & Leeds Railway containing 19 plates, published in London in 1845, fetched £13 10s. 0d.

Various modern items secured surprisingly high prices. A copy of Sir Malcolm Barclay-Harvey's "History of the Great North of Scotland Railway," published in 1940, was sold for £6, but a large part of the edition was destroyed by fire in the London blitz and the volume is scarce. W. L. Steel's "History of the London & North Western Railway," published in 1914 and described in the catalogue (wrongly, we feel) as "one of the rarest of railway histories," realised £8. W. W. Tomlinson's "The North Eastern Railway: Its Rise and Development," also a publication of 1914, secured £5 15s.

The total obtained for the Railway Collection amounted to £3,511 12s.

Central Uruguay Railway Co. of Montevideo Ltd.

The ordinary general meeting of the Central Uruguay Railway Co. of Montevideo Ltd. was held on November 13 at River Plate House, London, E.C.2. Brigadier-General F. D. Hammond, C.B.E., D.S.O., the Chairman of the company, presided.

The chairman, in the course of his statement circulated with the report and accounts for the year to June 30 last, said:—

In my statement last year, I told you that we were about to increase our rates on goods and livestock by 10 per cent. on January 16, 1945, to meet the cost imposed by the Commercial Employees Wages Law, which, in our view, is quite unsuitable to an organisation like a railway. Aided by this, the gross receipts increased to the extent of £42,246, or 2 per cent. Towards this, goods, which account for more than half our receipts, contributed an increase of £56,551 and passenger fares £50,593, although fares were not raised at the same time. Livestock decreased by 17 per cent. due, not to the increased rates which they could well stand, but mainly to depletion of herds and poor conditions after the disastrous drought of two years ago.

On the expenditure side there has been an increase of only £50,870, or 3 per cent., despite the fact that our bill for salaries and wages rose by reason of the wages law, and an extra contribution of £32,507 which was made to renewals. A very welcome fall in the bill for fuel was the main reason why the rise on expenditure was not larger. Our net receipts thus showed a decrease of £8,624.

We have been able at last to start relaying the Nico Perez line. Only 11 kilometres had been laid by June 30, but some 80 kilometres of track materials have arrived from America, or will shortly arrive, and we have the promise of another 80 kilometres from this country during the current financial year. The only serious difficulty is sleepers. None can be got in Uruguay, and all the usual sources of supply—Argentina, Paraguay, and Brazil—are proving more and more restricted, but everything is being done to get them so that there may be no check to the programme.

In accordance with our policy of cordial co-operation with the Government, we informed it early in 1945 that, as we were not paying a penny on any of our debentures or capital stock, we proposed to give public notice on May 1 that, as from August 1, we would increase our passenger fares by 7½ per cent., livestock by 15 per cent., and goods by 30 per cent. This we are entitled to do under the terms of our concession. These may seem at first sight large increases, but they are not out of relation to the prices ruling in the country. To take a simple instance to show the effect on the consignor, the value of a wagon load of cattle at Montevideo has gone up since the war by some \$450; the rail charge for getting this wagon load to Montevideo has, on the longest haul, gone up only by \$82, and on the short haul by some \$30 to \$40. So far as the railway is concerned, the new charges were calculated to pay only a modest 2 per cent. on the capital stock after meeting the yearly debenture interest.

In informing the Government of our intention, we also told it that if it preferred that the company's financial problem should be solved by means other than the raising of tariffs, we would be glad to consider alternatives. The Government then

asked us to formulate alternative proposals. We put forward three:—

(1) Direct purchase by the State.
(2) Re-establishment of a Government guarantee of income in return for the Government having the right to intervene in tariffs.

(3) Joint ownership of the undertaking by the Government and the present proprietors.

The Government appointed a Commission to study these proposals. It did not question our right to increase the tariffs; in fact, it has hitherto always regarded it as inalienable and has referred to it as such. In further support of this, it should be noted that it asked us not to apply the increases to livestock and forage traffic for the two departments of Cerro Largo and Melo, which were suffering from drought, a request with which we complied.

On May 1 public notice of the increases was given, and they came into force on August 1. A few days later, without any warning, the Government announced that it proposed to introduce legislation to take powers to fix the tariffs of all land and water transport. This it did while the Commission which it had appointed was still sitting, and had not reported on our proposals. Such a law, if passed, would deprive the company arbitrarily of one of the most valuable rights which it holds by virtue of its concession without proffering any compensation in return. The proposed law would cut clean through the rights secured by the concession, and dispossess of its main safeguard the capital which the British public has invested on the strength of that concession.

The British-owned railways in Uruguay have reason to be proud of their record. For over 65 years we have served the country and have contributed in ample measure to its prosperity and stability. Without these railways, its development would have been grievously hampered. This company is the largest employer of labour in the land and has been on the happiest terms with its staff. No strike has occurred for over 20 years. The negligible returns paid on the capital during recent years show that the railways have made their first objective the interest of the country and the duty of service which they owe to it.

Such a record deserves fair treatment, and fair treatment we have always received in the past. Uruguay itself in the past has been at pains to maintain a fine record, both in regard to the railways and in its financial and commercial dealings with this country, a record which is worth maintaining.

I would emphasise that this fair road still lies open to the Uruguayan Government. We have all along made it clear that it is our earnest wish to co-operate with it to reach a harmonious agreement which will be fair to both parties. With the goodwill which has hitherto characterised the dealings of the Uruguayan people and its Government with us, I feel sure that such an agreement could be found.

In conclusion, I would pay a cordial tribute to our general manager and colleague, Mr. H. H. Grindley, and our staff in Uruguay, who, faced with difficult war-time problems and shortages, have carried on so successfully. I would also pay a warm tribute to the secretary and members of the London staff.

The report and accounts were adopted.

Nyasaland Railways Limited

The fourteenth annual general meeting of Nyasaland Railways Limited was held in London on October 30. Mr. W. M. Codrington, M.C., Chairman of the company, presided. The following is an extract from the Chairman's statement, circulated with the report and accounts:—

The accounts for 1944 show that after putting to reserve for renewals the sum of £26,192 (compared with £31,887 in the previous year) the excess of gross receipts over working expenses amounted to £87,114, as compared with £96,935 in 1943. This decrease of £9,821 was due partly to receipts being lower by £1,312, but mainly to an increase in maintenance and running costs of £8,509.

The fact that during the last 10 years the tonnage of goods carried has increased from 67,113 tons to 93,004, the number of passengers from 87,475 to 291,672, and engine mileage from 158,732 to 312,474, has put a very severe strain on our engine power and rolling stock resources, to which it has not been possible to make any additions during the war. Nor have we yet received delivery of the six new boilers for our existing type of engines for which we placed orders last year.

The cost of stores and materials is high, and there does not seem to be any prospect of a reduction. The upward trend of wages is considerable, but provided that it is accompanied by increasing skill and efficiency I think that that is all to the good. We are hoping to restart our training scheme to fit Africans to fill all tradesmen posts under the grade of chargehands.

In this connection I am glad to refer to the decision taken to make a free grant to

Nyasaland under the Colonial Development & Welfare Act, of the sum of £345,000, to assist the Government to carry out the comprehensive five-year plan for educational development in the Protectorate, recommended by the Nyasaland Post-War Development Committee. The Government has also transferred from the surplus balances of the Native Tobacco Board £130,000 to establish a Development & Welfare Fund for promoting the welfare of the African population.

On November 1, we, in conjunction with the Trans-Zambesia Railway, are introducing a pension scheme which will embrace all our European, Indian, Mauritian, and Goanese employees. During the earlier years of the working of the scheme, the railways will make contributions in addition to the normal contributions of 5 per cent. of his salary by the employee and approximately 10 per cent. by the railways.

The term of appointment of Sir Frank Baddeley, K.B.E., C.M.G., as one of the representatives of the Nyasaland Government on the board ended on November 3, and in his place the Nyasaland Government has appointed Mr. C. E. Rooke, C.M.G. In welcoming Mr. Rooke, my colleagues and I would like to record our appreciation of the services rendered to the company by Sir Frank during his 15 years' tenure of office. Our thanks are due to Mr. Bucquet and our staff in Nyasaland who have successfully surmounted difficulties due to shortage of rolling stock and other causes; and also to Mr. Carey and his small staff in London for another year of devoted and arduous service.

The report and accounts were adopted.

Ministry of War Transport Accident Report

Ecclefechan, L.M.S.R.: July 21, 1945

Major G. R. S. Wilson inquired into the accident which occurred at 3.7 p.m. on July 21, 1945, at Ecclefechan, L.M.S.R., when the 1 p.m. express, Glasgow (Central) to Euston, composed of 13 bogie vehicles, drawn by 4-6-2 type locomotive No. 6231, having passed the distant signal at caution, overran the outer and inner homes and collided, at an estimated speed of 60-65 m.p.h., with a freight train setting back into a refuge siding. The driver was killed and the fireman fatally injured. There was remarkably little structural damage to coaches and casualties to passengers were comparatively light; 31 were injured but all had left hospital within 10 days. Rescue and first aid work was promptly and efficiently

turned off. Fortunately no coaches were telescoped. Assistance was summoned promptly and normal working resumed under a speed restriction in 27 hours.

VIEW OF THE SIGNALS

Major Wilson observed the signals from the footplate at about 11.30 a.m. on a dull clear day with the light behind them. The distant arm has a background of distant hills and did not stand out very clearly in this light, and the home signals were also not very conspicuous when first seen against a background of trees, but a good sky background was obtained nearer! At 4.30 p.m. the distant had become a good deal more conspicuous. The lights of the intermediate signals, with 3-watt

not appear to have been recently repainted.

THE APPROACH OF THE EXPRESS

The driver and guard of the freight train witnessed the collision. (The fireman, who was on the up platform, did not.) It occurred almost immediately after the former noticed the smoke of the approaching train. He said "it was clear weather and the signals could be seen easily. It was raining but clear." He considered the distant a good signal once it came into view clear of the trees. On fast trains, often driven by him on this route, it was necessary to apply the brake directly the distant was observed at caution, but he had never failed to stop at the outer home. The guard was in his van in the siding about midway between the two home signals when he saw the express coming and realised it would not be able to stop. He referred to a pall of black smoke enveloping the engine, but

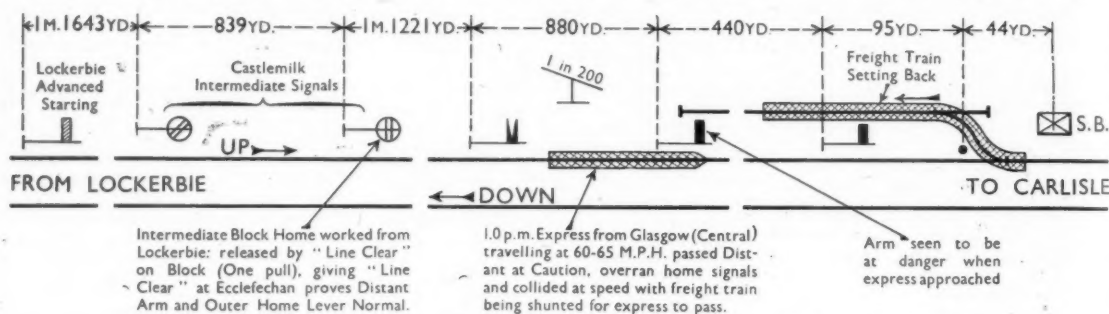


Diagram illustrating circumstances of collision at Ecclefechan, L.M.S.R., July 21, 1945

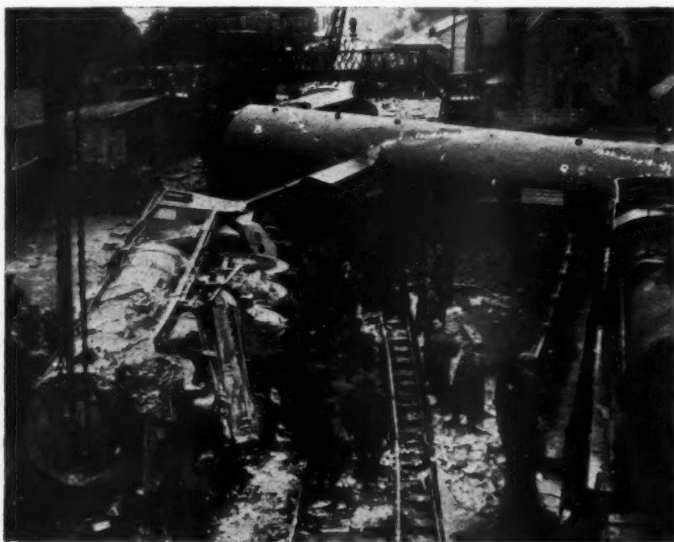
effected. There was drizzling rain; but visibility, by all accounts, was not greatly impaired. The failure of the driver of the express, an experienced and capable man, to observe the adverse signals remains unexplained. The accompanying diagram represents the essential facts of the case.

ORIGIN OF THE COLLISION

The block section between Lockerbie and Ecclefechan is divided at Castlemilk by intermediate block signals of the searchlight type, approach lit, and the lever working the intermediate block home is released for one pull by "line clear" from Ecclefechan, where the signals concerned are upper quadrant semaphores. The freight train passed Lockerbie under clear signals at 2.48 p.m. and was stopped at Ecclefechan to shunt for the express to pass. The latter was duly accepted at 3.5 p.m., "train entering section" being received immediately afterwards. It had left Carstairs late and lost time at two signal stops, but it appears to have passed Lockerbie at 3.2 p.m., 13 min. late. The freight train duly set back into the siding and the engine had just passed the signal box when a "train waiting" buzzer showed that the express was approaching the outer home. The collision followed, the express striking the fourth vehicle of the freight train and driving its engine forward 110 yd., but, the box being a low one, the signalman did not see it take place. The tracks between the platforms were destroyed for 130-140 yd. and a considerable length of both platform faces torn away, with severe damage to the station footbridge. The front wall of the signal box was cracked and displaced. The express engine came to rest on its side 138 yd. from the point of collision considerably damaged. Steam escaped in great volume as the safety valves were

bulbs, he considers not very arresting in daylight, especially as the distant is on a right-hand 60 ch. curve and the direction of its focus a matter of compromise. From the driver's (left-hand) side it comes into view at 100 yd. range but can be seen from the fireman's side at about 490 yd.; the intermediate home the driver sights at about 540 yd. There is no previous record of the Ecclefechan signals being overrun, nor have any complaints been received as to their view. Their arms did

could not say whether it was steaming or not as it passed him, still surrounded with black smoke. He estimated the speed at 60 m.p.h. He could not say whether the brakes were applied, but saw no sparks and heard no brake blocks rubbing. The guards of the express said the journey had been uneventful and that the brakes had operated normally at the booked stops. Neither could recollect any check at the Castlemilk intermediate signals and the collision took them by surprise. A



A view of some of the damage resulting from the collision

member of the Operating Manager's staff travelling in the train thought it was going faster than usual, perhaps between 60 and 70 m.p.h., and suggested that the driver was trying to make up some of the time lost by the signal stops. He was quite sure no brake application was made immediately before the collision.

The engine regulator was found closed and the reverser in forward gear at 15 per cent. cut off. The vacuum brake handle, which works across the engine, was found in the "off" position, but as the vacuum was destroyed the handle would become loose and most likely be thrown over to the right as the engine overturned. A thorough examination of the engine was made but no defects found such as might have distracted the engine-men's attention, nor one which might have accounted for the black smoke referred to by the freight train guard. The engine-men were both stationed at Crewe North shed. The driver, 46 years old, with 30 years' service, had been a driver for 4 years. He was in the special link working relief turns and was taking the place of a driver on leave. The fireman, aged 27, with 10 years' service, was one of the regular men for the turn. The driver was considered to be properly acquainted with the route, over which he had driven expresses on 14 occasions since initialling the route card in February, 1945. He was spoken of by the District Locomotive Superintendent as a reliable driver with a satisfactory record, a steady, level-headed man who would be selected "for any job which wanted special care exercised, or for anything out of the ordinary." So far as could be ascertained he had no personal troubles such as might have distracted his attention from his duty. Persons who came into contact with him the previous day and on the day of the accident considered him to have been in good health and spirits.

INSPECTING OFFICER'S CONCLUSION

No responsibility rests on the signalman at Ecclefechan. The electrical block controls were found to be in order, proving the distant arm to have been at caution when the express was accepted and the possibility of its being moved afterwards by extraneous means is so remote that it may be dismissed. That the outer and inner homes were properly at danger is not in doubt. All the evidence suggests that the brakes were in order and the only possible conclusion is that the express driver failed to obey the signal indications. Though steam was shut off, probably as he realised the situation at the last moment, any brake application he may have made came too late. The black smoke that was seen suggests that the regulator may have been closed 15 to 20 seconds before the collision, but if this was so it is remarkable that no brake application was observed.

The effects of the collision were so exceptional in the absence of serious damage to rolling stock that they afforded no indication whether the speed was materially in excess of the 60 m.p.h. or so usual at this point. Recorded times and other evidence make it seem possible that the driver was trying to recover some lost time and was travelling faster than usual as he approached the Ecclefechan distant. There was no reason why he should not, provided the signals were clear, but the possibility cannot be overlooked, though it is not capable of proof, that the Castlemilk intermediate distant may also have been ignored at caution. The death of

the enginemmen precludes any evidence as to what happened on the footplate. The possibility of sudden illness of the driver, unnoticed by the fireman, cannot be excluded, although his general health was stated to have been satisfactory in every way. There is no reason to suppose that there was an engine defect which might have distracted him and, with ordinary attention, his experience of the route should have been sufficient to prevent temporary loss of location under weather conditions which were not abnormal. By all accounts visibility was not seriously affected by the rain and the view of the distant signal, while perhaps capable of improvement, cannot be regarded as unsatisfactory from the driver's side of the footplate.

REMARKS

The Ecclefechan up distant is one of six on the route which, but for the war, would have been converted to colour light, with main power supply, as part of the company's programme for the installation of colour-light distant signals on high-speed main lines. The work is shortly to be put in hand and the signal resited considerably further back, as the present distance of 880 yd. from the outer home on a falling gradient of 1 in 200 is not sufficient for the high train speeds which were prevalent before the war, and which are likely to be resumed. Advantage will also be taken of power supplies which are becoming available to improve the lighting of the Castlemilk and other battery-fed intermediate signals.

In this case, however, signals were not obeyed in daylight, under ordinary weather conditions, and whatever were the circumstances which led to this, it is clear that nothing less than automatic train control of the intermittent warning type, providing an audible signal and brake application at the distant, could have been relied on to prevent the collision. A somewhat similar case was the collision at Brentwood in February, 1941, when well-sited colour-light signals were passed at yellow and red under full steam, in daylight and fine clear weather; at Ilford in January, 1944, three successive colour-light signals were also passed at night at yellow, red, and red, but the visibility on that occasion was very bad.

The conclusions of the 1927 Automatic Train Control Committee were referred to in the report on the serious collision at Castlemilk in 1937, which dealt at some length with the inter-related questions of automatic train control and colour-light signalling, as also in the report on the collision at Ilford. It is not proposed to recapitulate, except to observe that colour lights represent a normal though substantial improvement of the signals themselves in conformity with technical progress. As might be expected, they have already proved of great service in facilitating the task of drivers, with marked benefit to safety and traffic operation. But even where they are installed, safety in the long run still remains dependent on the fallible human element, in the absence of a more positive link between the wayside signals and the footplate, and they cannot be regarded as an equivalent alternative to automatic train control from the standpoint of security. The two systems were in fact referred to in the report of the 1927 committee as "indirect" and "direct" methods respectively of attaining security, and preference was expressed for the latter.

The committee went on to suggest that as a "direct" method of control the intermittent contact type was likely to

prove most suitable for conditions in this country, influenced no doubt by the long-standing and successful application of the system to the more important lines of the Great Western Railway. Since the date of the report (1930) the G.W.R. has completed the equipment of the great majority of route mileage with its well tried apparatus, and the L.M.S.R. has been conducting large scale experiments with intermittent warning control of the non-contact inductive type, which are continuing; the L.N.E.R. was experimenting with the latter system between Glasgow and Edinburgh when the outbreak of war stopped work.

So far the L.M.S.R. experiments have been confined to the Tilbury & Southend line, on which fog is so prevalent, and the complete equipment of that section already has achieved valuable results. The latest experimental development of this non-contact apparatus gives the same indications on the footplate as the G.W.R. contact type; it is to be hoped that it will receive extensive trial under high speed main line conditions.

This is not the place to compare the respective technical merits of the contact and non-contact systems, both of which are subject to continual improvement and development with the same end in view, but it will be seen from the foregoing that the general advantages of warning control are receiving the attention of the L.M.S.R. The case for providing this additional aid to drivers appears to be no less strong today than in 1930, and this view receives confirmation from recent accidents of the type under consideration. It seems desirable that a review of the position generally should not be long delayed, at any rate so far as high speed main line routes are concerned.

Newcomen Society Silver Jubilee

The present month marks the completion of 25 years of activity of the Newcomen Society for the Study of the History of Engineering & Technology, and the occasion was marked at the annual meeting on Wednesday, November 14. After the formal business, the election of the officers for the ensuing session, and the presentation of the annual report and financial statement, the work of the Society during the past 25 years was reviewed by the retiring president (Mr. Stanley B. Hamilton), who has been re-elected for a further term of office.

Since the cessation of hostilities in Europe, the Society has got into touch with members in various countries that have been under German domination. Both the British and the American memberships have flourished. The number of new members elected in Great Britain during the past year has been 34, and on September 30 last the total number was 297. The affiliated society in North America has elected 489 new members during the past year, bringing the total over the 5,000 mark.

A paper on the Onodaga Salt Works of New York State, 1646 to 1846, by Mr. Greville Bathe, a member of the British Society resident in the U.S.A., was read in his absence.

The President and Council felt that the occasion of the silver jubilee of the Newcomen Society could not be commemorated better than by providing members with an opportunity to express their feelings of obligation and gratitude to Dr. H. W. Dickinson, without whose labours it is

difficult to imagine the Society having attained its present position. He was Honorary Secretary, 1920 to 1932; President, 1932 to 1934; Joint Honorary Secretary, 1934 to 1945; and Editor of the *Transactions*, 1920 to 1945. Accordingly, subscriptions were invited to a "Dr. Dickinson Presentation Fund," and it was decided to entertain him to dinner after the annual general meeting. This dinner, which was held at Kettner's Restaurant, W.I., was a very pleasant and informal gathering of some 66 persons. The toast of "Dr. Dickinson" was proposed by Mr. L. St. L. Pendred, Editor of *The Engineer*, and an enthusiastic member of the Society from its foundation days. "The Guests" were proposed by Engineer-Captain Edgar C. Smith, and the response was by Mr. E. Graham Clark, Secretary of the Institution of Civil Engineers. The toast of "The Newcomen Society" was proposed by Mr. I. G. Evans, Director, Building Research Station, Department of Scientific & Industrial Research.

Retired Railway Officers' Society

The annual luncheon of the Retired Railway Officers' Society was held at the Connaught Rooms, London, W.C.2, on Tuesday, November 20. Major-General G. S. Szlumper, President of the Society, was in the Chair, and among those present were:—

Mr. A. W. Arthurton.
Messrs. H. Barnden, D. Blee, H. I. Bond, J. F. Bradford, F. S. Bridge, L. C. Brittlebank, W. A. Brown, Captain W. C. Bruty, Mr. H. J. Burcham.
Messrs. H. R. Campfield, R. Carpmal, S. B. Carter, A. L. Castleman, W. J. Clayton, A. R. Cooper, E. C. Cox, F. W. Crews, S. O. Cotton.
Messrs. J. Dalziel, R. G. Davidson, Ashton Davies, Colonel W. O. Davies, Messrs. F. R. E. Davis, G. Cole Deacon.
Messrs. G. Ellison, K. R. Ellison, A. Endicott, W. J. England, J. W. Enser.
Lt.-Colonel G. N. Ford, Mr. C. Furber.
Mr. L. C. Geach, Colonel Eric Gore Browne, Messrs. E. D. Grasett, H. J. Guest.
Messrs. E. B. Hassall, A. E. Hammett, Sir F. Handley Page, Messrs. W. J. Hatcher, E. S. Hunt.
Messrs. T. W. Jacobs, W. R. Jones.
Messrs. J. A. Kay, Y. R. Kinghorn, R. C. Kirkpatrick, A. E. Kirkus, C. F. Klapper.
Messrs. D. R. Lamb, W. A. Lambert, F. W. Lampitt, C. J. C. Latham, J. H. Laundry, J. F. Lean, J. W. Lovejoy.
Messrs. T. Martin, A. Maynard, E. W. Mauger, D. C. McCulloch, W. A. Messer, A. S. Mills, Major L. A. Mills, Messrs. J. C. Mitchell, A. E. Moore, H. V. Mosley, J. Murray.
Sir Chas. Newton.
Messrs. E. E. Painter, F. K. Pelley, W. M. Perts, R. Pike, W. H. J. Pyne.
Messrs. R. M. T. Richards, H. E. Roberts, V. A. M. Robertson, P. G. Bobinson, R. Rowbottom, F. Ruffell.
Sir W. A. Stanier, Messrs. J. Sayers, R. A. P. Tetterfield, F. Smith, P. Syder, J. G. Symes, Major-General G. S. Szlumper.
Mr. T. E. Thomas, Major W. E. Thornhill, Messrs. F. W. Tipton, F. Tyler, F. W. Tyler.
Mr. W. T. Venton.
Sir Herbert Walker, Messrs. G. J. Walker, H. B. Webster, F. Weller, E. Wharton, H. Wheeler, H. E. O. Wheeler, Lt.-Colonel J. S. Wilson, Sir W. V. Wood, Mr. A. Wood-Hill.

The President, proposing the toast of the guests, said that among the visitors present were Colonel Eric Gore Browne, Chairman of the Southern Railway Company, and Mr. F. R. E. Davis, Secretary of the Great Western Railway Company, who was also Mayor of Kensington this year, and who might have been expected to have shown a better respect for the Institution by turning up in his robes of office. Others he mentioned were Sir Herbert

Walker, Sir William Wood, Sir Charles Newton and Sir Frederick Handley-Page, President of the Institute of Transport. He was glad to see the last-named because his presence tended to bring the breath of the coming generation into the proceedings of the passing-out generation. He also welcomed Mr. T. E. Thomas of the London Passenger Transport Board, Mr. J. A. Kay, Editor of *The Railway Gazette*, and last, but not least, Mr. G. Cole Deacon.

The retired railway officers realised the stupendous tasks the railways had had before them during the last six years. They congratulated all those who had contributed to the performance of those tasks.

What happened when members of the Society left the railways? The first thing was that there was talk of nationalisation! He could only hope that the Government, like makers of baby carriages, would benefit by the mistakes of others. In the coming struggle for fair terms, it would not be the size of the dog in the fight that counted, but the size of the fight in the dog. He coupled with the toast the name of Colonel Eric Gore Browne, who had done a great deal of valuable work during the war. He had always taken a very great interest in the railway he served, and in the staff who worked on the railway.

Colonel Gore Browne, responding to the toast, said that when he had accepted the invitation to speak at the luncheon, it had occurred to him that it might conceivably be the last salutation of a railway chairman. He owed a debt to Sir Herbert Walker and General Szlumper that he could never repay. He went on to pay tribute to the retired railway officers for all that they had done during their terms of office with the railways, and said that but for the efforts that they had made, it would not have been possible for the railways to have done so much in the recent war. He would not have it thought that the boards were downhearted about the future. They were not.

Mr. F. R. E. Davis, proposing "The Success to the Retired Railway Officers' Society," said that the pleasure of proposing that toast was exceeded only by the fact of being among so many retired railway officers. He was within measurable distance of retiring himself, and he looked forward to attending future meetings of the Society, perhaps in a different capacity to that he enjoyed on the present occasion. He had spent a good many years in local Government work, and he would suggest to retiring railway officers that they might take part in work of this kind. They would find it interesting and pleasurable, and it would be of real service to the community.

Mr. T. E. Thomas, seconding the toast, said that he was present under false pretences, although he could claim, in extenuation, that when he accepted the invitation he had not joined the leisured classes. Many of the members of the Society were mechanical people, who had devoted much time and thought to the problem of keeping engines running long after both they and the engines had thought the time to run had passed. He suggested that they might devote some of their energies to keeping men of advanced years active. Many retired railway officers needed attention to their tubes, and reseating of their valves.

Mr. Ashton Davis, responding to the toast, said that the difference between an active railway officer and a retired railway officer was the fact that the retired railway officers had to prepare their own speeches and he suffered in consequence. He paid a special tribute to Sir Herbert Walker for his work on behalf of the

British railways during the war of 1914-18. Between that war and the recent war he had carried out the great scheme of electrification on the Southern Railway, and the Southampton Dock project. He felt that these works were symbolised in the names of Sir Herbert Walker, General Szlumper, and Mr. E. C. Cox.

Mr. E. C. Cox, proposing the toast of "The President," expressed appreciation of the services General Szlumper had rendered during his secretaryship of the R.E.C. during the 1914-18 war. Even in those far-off days he had looked forward to the time when he would be able to retire and to roam the world. He thought that the President was to be congratulated on retiring from the tyranny of work at the present time, when the shackles might be bound even tighter.

New European Rail Facilities

Under the auspices of the European Central Inland Transport Organisation meetings were held in Brussels on October 22, 23 and 24 to discuss improvements in the international passenger train services. Representatives of several Governments of the United Nations, Allied military occupation authorities and some European railway administrations attended.

The meetings reached a number of useful conclusions which should lead to improved facilities for civilians travelling in various parts of Europe on official business. These facilities, in part, took the form of an agreement in principle by the military authorities to extend the availability of purely military trains to strictly limited numbers of civilian passengers, to the revision of timings of certain existing trains, to the provision of better connections, and to the running of a number of new trains. In many cases the agreement was only in principle, but in such instances it was decided to settle the details between the administrations concerned, at meetings to be held in the course of November and December. Services in which it is hoped that the new facilities shortly will be available are:

(1) Calais-Copenhagen (extension of an existing military service from Bad Oeynhausen).

(2) Paris-Frankfurt-Nuremberg.

(3) Paris-Prague: at first this will, it is expected, be by means of the Arlberg Express between Paris and Linz with a new connecting service between Linz and Budejovice; at a later date, probably next February, it is expected that it will be possible to inaugurate a direct through service between Paris and Prague via Nuremberg.

(4) Bâle-Rome: a new service is to be established during November via the Gothard and Milan, which will provide a connection with the Arlberg Orient Express at Bâle. In the course of November a meeting will be held in Switzerland to examine the possibility of reviving the Simplon-Orient Express as between Paris and Trieste, with a portion for Rome to be detached at Milan. It was also decided that at the meeting there should be reviewed, as a whole, the services between France, Belgium, and the Netherlands on the one hand, and Switzerland and Italy on the other.

(5) Amsterdam-Brussels: a new through service available for general use has been arranged.

On the proposal of the French National Railways a resolution was passed that the changes to summer time and vice versa should take place on the same date in all countries.

Parliamentary Notes

Nationalisation Proposals

In the House of Commons on November 19, the Lord President of the Council (Mr. Herbert Morrison) stated that the Government believed that it was in the public interest that it should give a general indication of the further measures it proposed to introduce during the life of the present Parliament to bring certain essential services under public ownership. That statement, which followed the clear indication of Government policy contained in the King's Speech, would enable Ministers to enter into consultation with the industries affected. As stated in the King's Speech, the Government would introduce a Bill during the present session to nationalise the coal-mining industry. Later in the lifetime of this Parliament the Government intended to introduce measures to bring under national ownership the electricity-supply industry and the gas industry. That would implement the concerted plan for the co-ordination of the fuel and power industries foreshadowed in the King's Speech.

It was the intention of the Government, Mr. Morrison continued, to introduce, during the life of the present Parliament, measures designed to bring transport services, essential to the economic well-being of the nation, under public ownership and control. Government policy in respect of civil aviation and telecommunications services already had been announced. In respect of inland transport, powers would be taken to bring under national ownership the railways, canals and long-distance road haulage services.

As regarded road passenger transport, it was considered essential that the undertakings of the municipalities and companies should be fully co-ordinated with the national scheme, and it must be considered whether that best could be achieved by transferring ownership to a national authority or by providing for the creation of regional or joint boards responsible for their own finances. The second alternative would make it necessary for some control to be exercised over those boards by a national authority to ensure conformity with general policy and their proper correlation both with one another and with other forms of transport.

Dock and harbour undertakings would be brought within the scope of the national scheme. The most suitable form of public ownership was under examination, as was also the question of including certain appropriate ancillary activities.

It was not the intention of the Government to propose the nationalisation of the shipping industry, and it would rely on the industry to have full consideration for the public interest. The Government looked with confidence to the shipping industry generally to play a full part in the effort towards national economic recovery, and was alive to the problems confronting our shipping as a result of the war.

The Coalition Government had invited the iron and steel industry to submit a report on the improvements required to put the industry on an efficient operating basis. The Government proposed to await that report, which was expected shortly, before taking final decisions on the future organisation of the industry.

During the interval which necessarily would elapse before the plans could be presented to Parliament and carried into effect, all necessary development in the industries concerned must proceed. The

Government, therefore, proposed to see that progressive undertakings would not be prejudiced if they continued to develop in the interim period; and the appropriate departments would enter into early consultations on the point with the industries concerned. The compensation payable would take into consideration any extent to which an undertaking had not been maintained up to the time of transfer, and the Government would naturally take precautions in its legislation to protect the acquiring authority against any transactions entered into in the interim period, whether by way of contract or otherwise, which might prejudice that authority.

The proposals involved important changes in the ownership and organisation of a series of industries vital to the national wellbeing—changes which were approved by the people at the general election. The policy issues involved must be taken as having been decided and approved by the nation, and it would be for Parliament, Government and the active leaders and workers of the industries concerned to pull together in a high public spirit so that those great changes might be carried through smoothly and successfully, thereby promoting the well-being of the nation, including efficient service for the wide range of privately-owned industries to which the successful operation of those industries coming under public ownership was vital.

Mr. Oliver Lyttelton (Aldershot—C.) said that the statement could hardly be more important, as it affected the industrial field. In many respects it was also necessarily perhaps—ambiguous. It was just as important to those industries which were not coming within that embracing nationalisation, as it was to the others, because it covered all the essential services, and he hoped that the Leader of the House at an early stage would give them sufficient time to discuss those matters on which the future of our industries so largely depended.

Mr. Morrison said he saw no need for that at all; legislation would be introduced, and that would be debatable; the Opposition had had ample opportunity to raise this on the Address in reply to the King's Speech. If the Opposition did not discharge its functions in the Debate on the Address, it was no part of his business to help it to do so now.

Mr. Lyttelton pressed the point, and said it was easy for the Leader of the House to make those Parliamentary points, but there were several parts of the scheme which were not covered by the Gracious Speech. Surely it was hardly treating a matter of such importance with the respect it deserved.

Mr. Clement Davies (Montgomery—L.) asked that in view of the very important statement which Mr. Morrison had made, would he state now or in the very near future what was the Government policy arising out of that statement with regard to land and the increased value which was bound to result from any improvement in respect of services for transport?

Mr. Morrison reminded the House that in the Gracious Speech it had been announced that legislation would be brought in with regard to the planning of land, compensation and betterment.

Captain Sir Peter Macdonald (Isle of Wight—C.) said that as the Government was carrying out that programme of legislation for which it had no mandate, might he ask when were they going to find time to tackle the vital problems of demobilising our Forces, building houses for the nation, and rebuilding export trade?

Mr. Garry Allighan (Gravesend—Lab.) asked the Lord President whether the decision not to nationalise shipping applied only to ocean-going shipping, or would it include coastwise shipping?

Mr. Morrison said that it applied to coastwise as well as ocean-going shipping, but it was recognised that there were relationships between coastwise shipping and inland transport, to which the Minister of War Transport would give due attention.

Sir Wavell Wakefield (St. Marylebone—C.) inquired when Mr. Morrison was going to bring before the House evidence that all those proposals he intended carrying out were really in the public interest.

No answer was returned.

Questions in Parliament

Ministry of War Transport

Mr. Peter Freeman (Newport—Lab.) on November 12 asked the Prime Minister whether, in view of the fact that the war had terminated, it was his intention to continue the name of the Ministry of War Transport.

Mr. Herbert Morrison (Lord President of the Council) in a written answer stated: No; and the necessary legislation will be introduced as soon as possible.

Southern Railway Suburban Services

Mr. A. M. F. Palmer (Wimbledon—Lab.) on November 12 asked the Minister of War Transport if he would state the average period of time between the advertised and the actual arrival of trains on the London and suburban services of the Southern Railway between the hours of 7-10 a.m. and 4-7 p.m., and whether an improvement had been effected in the operation of these services during recent weeks.

Mr. Alfred Barnes: I am making inquiries and will communicate with Mr. Palmer as soon as I can obtain the information.

Mr. Palmer: Is the Minister aware that the delays on the Southern Railway are an increasing source of irritation to the travelling public? Cannot something be done about it?

Mr. Barnes: I gathered as much from the question. I can assure Mr. Palmer that the matter will be investigated.

L.M.S.R. Railway Services

Mr. W. N. Warbey (Luton—Lab.) on November 12 asked the Minister of War Transport whether he would call the attention of the London Midland & Scottish Railway to the inadequacy and unpunctuality of the train service between St. Pancras and Luton, especially between 5 p.m. and 7 p.m.

Mr. Alfred Barnes in a written answer stated: I have asked for a report from the London Midland & Scottish Railway on this matter and will communicate with Mr. Warbey when I have received it.

Major Duncan McCallum (Argyll—C.) on November 12 asked the Minister of War Transport if he was aware of the proposal to close that section of the London Midland & Scottish Railway running through Strathearn, between Balquhider and Crieff Stations; and if he would withhold his approval, in view of the fact that this line provided one of the two railway connections between Perth and the West Highlands.

Mr. Alfred Barnes wrote in reply: I would refer Major McCallum to my reply to Mr. W. N. Snadden on October 15. Major McCallum may be assured that all relevant considerations will be taken into account before a decision is reached.

Notes and News

San Paulo (Brazilian) Railway Co. Ltd.—The directors have declared an interim dividend on account of the year ending December 31, 1945, of 2½ per cent., less tax, on the 5 per cent. non-cumulative preference stock, payable to the holders on the register as at November 6, 1945.

French Electrification Plan.—It is reported that a ten-year plan, under which more than 3,400 miles of railway will be electrified, has been adopted by the French Minister of Transport. It is estimated that the scheme will effect an economy of some 2,600,000 tons of coal a year.

Bengal Rail Accident.—Seven people were killed and 44 injured on November 7 when the North Bengal express and the Darjeeling mail collided between Ishurdi and Santhar, on the Bengal-Assam main line. The drivers of both trains were among the killed. The cause of the accident is not yet known.

The Institute of Welding.—Mr. H. O'Neill, M.Met., D.Sc., will read a paper entitled "Metallurgical Features of Welded Steel," at a meeting of the Institute of Welding, to be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, on Wednesday, November 28, at 6 p.m.

Overseas Employment.—A personal assistant to the Chief Engineer is required by the Nigerian Government Railway for one tour of 12 to 24 months residential service with possible permanency. Candidates must have, among other things, a working knowledge of railway civil engineering, accounting and costing methods. For full particulars see Official Notices on page 551.

Railway & General Investment Trust Limited.—The net revenue of the Trust for the year ended September 30, 1945, amounted to £28,503 compared with £28,355 for the previous year. An ordinary dividend of 6½ per cent., against 6 per cent., less tax at 9s. 5d. has been declared. As the holdings of the Trust do not now include any substantial proportion of railway stocks, it is proposed to change the title.

Vickers Train Lighting System.—Notice has been received from Vickers Train Lighting Co. Ltd. that arrangements have been made whereby, as from December 31, 1945, it will cease to supply train lighting equipment, and as from that date Metropolitan-Vickers Electrical Co. Ltd. will be the sole supplier of train lighting equipment of the Vickers "VI" train lighting type, which will be sold by Metropolitan-Vickers Electrical Co. Ltd. under the name of the "Metro-Vickers" set. As from that date all enquiries by former customers of Vickers Train Lighting Co. Ltd. for the supply of spare parts should be addressed to Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester.

L.M.S.R. Timetable Alterations.—From December 1 the 10.15 p.m. sleeping car express from Edinburgh (Waverley) to St. Pancras, L.M.S.R., leaves at 10.5 p.m., is accelerated over the L.N.E.R. to Carlisle and leaves there at 1.10 instead of 1.37 a.m., ceases to call at Chesterfield and Luton, and reaches St. Pancras at 9.35 a.m., 36 min. earlier than hitherto. Departure from Nottingham is at 6.42 instead of 7.15 a.m., and the stop at Kettering is to set down passengers only. The 9.15 p.m. sleeping car train from Glasgow (St. Enoch) to St. Pancras also ceases to call at Luton from

the same date, but the St. Pancras arrival at 9.30 a.m. remains unaltered.

British Brown-Boveri Limited.—The offices of British Brown-Boveri Limited have removed from 22, Worple Road, Wimbledon, London, S.W.19, to Artillery Mansions, 75, Victoria Street, London, S.W.1. The new telephone number is Abbey 5777 (3 lines), and the telegraphic address, Reactance Sowest London.

Southern Railway Lecture & Debating Society.—On Thursday, November 29, at 5.45 p.m., at the Chapter House, St. Thomas's Street, S.E.1, Countess Sonia de Contades will give a lecture on "The part played by French railwaymen in the Resistance Movement" before the Southern Railway Lecture & Debating Society.

D-Day at Southampton Docks.—Mr. H. A. Short, M.C., M.Inst.T., Deputy Traffic Manager, Southern Railway, will deliver a lecture before the Southern Railway Lecture & Debating Society on D-Day at Southampton Docks, at 5.45 p.m. on Thursday, December 13, at the Chapter House, St. Thomas's Street, S.E.1.

Copper Development Association.—The Copper Development Association, which during the war operated principally from a temporary office in Rugby, has acquired premises at Kendals Hall, Radlett, Hertfordshire. All urgent communications and applications for the Association's literature should be addressed to Radlett. The Association will continue to maintain its registered address at Grand Buildings, Trafalgar Square, London, W.C.2.

Department of Overseas Trade: Change of Address.—The Department of Overseas Trade has removed from Hawkins House, Dolphin Square, London, S.W.1, to 35, Old Queen Street, Westminster, S.W.1. All communications should be addressed as follows: The Comptroller-General, Department of Overseas Trade, 35, Old Queen Street, Westminster, London, S.W.1. The telegraphic address is Advantage, Parl, London, and the telephone number, Victoria 9040.

G.W.R. Sleeping Cars.—In addition to the restaurant cars, the internal decoration and refurbishing of the sleeping cars of the Great Western Railway are undergoing a complete transformation by taking advantage of recent advances in the development of plastics. Interior fittings and furnishings of cars will be in plastic materials with a beige and apple green colour scheme of new design. Ceiling lighting will be provided in etched glass panels and the bedhead light fixtures will be in transparent plastics.

Travel & Industrial Development Association of Great Britain & Ireland.—Further plans are announced by the Association for the attraction of visitors from abroad when conditions permit. It has been decided, as one of the first steps, to arrange for information and literature to be available overseas for prospective holidaymakers in this country.

The Association is to establish a centre near Piccadilly Circus, complete with information bureau and appropriate displays. As nearly all the municipalities, travel agents, and publicity boards, as well as the transport concerns, are members of the Association, the centre will afford a comprehensive collection of tourist literature concerned with all parts of the British Isles. It is thought that such a headquarters would also be of value to the British public.

The Association's aim is to build up a tourist industry worth £100,000,000.

New Rolling Stock and Ships for South African Railways & Harbours.—A South African mission is to proceed overseas shortly to purchase ships and coaching stock required by the Railways & Harbours Administration, it was stated recently by the South African Minister of Transport. The mission, he said, also would try to

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices	
			Nov. 20, 1945	Rise/ Fall
G.W.R.				
Cons. Ord.	62½	55	56	+ 1
5% Con. Pref.	122½	114½	107	—
5% Red. Pref. (1950) ..	110½	104	103	—
5% Rt. Charge	135½	128	124½	—
5% Cons. Guar.	134½	125	121½	— 1
4% Deb.	118½	112½	110½	— 1
4½% Deb.	118½	114	112½	— 1
4½% Deb.	124½	119½	117	—
5% Deb.	137	129½	126	— 1
2½% Deb.	77	73½	81½	—
L.M.S.R.				
Ord.	34½	27½	28	+ ½
4% Pref. (1923)	64½	55	58	+ 1½
4% Pref.	81	72½	78	+ 2½
5% Red. Pref. (1955) ..	105½	102	101½	—
4% Guar.	107½	99½	100½	—
4% Deb.	111½	104	105	— ½
5% Red. Deb. (1952) ..	111	108	105½	—
L.N.E.R.				
5% Pref. Ord.	10½	7½	6½	+ ½
Def. Ord.	5½	3½	3½	—
4% First Pref.	68½	55½	57	+ 1½
4% Second Pref.	35½	28½	29	+ 1
5% Red. Pref. (1955) ..	101	97½	101½	+ 3½
4% First Guar.	101½	96½	99½	—
4% Second Guar.	95½	88½	93	—
3% Deb.	88½	80½	94	—
4% Deb.	110½	103½	104	— 1
5% Red. Deb. (1947) ...	105½	101½	101	—
4½% Sinking Fund Red. Deb.	107	104½	104½	—
SOUTHERN				
Pref. Ord.	80½	71½	74	+ 1
Def. Ord.	26½	23	23½	+ ½
5% Pref.	122	113½	106	—
5% Red. Pref. (1964) ...	117½	112½	108	— 1
5% Guar. Pref.	134	125½	122½	— 1
5% Red. Guar. Pref. (1957)	115½	112½	108½	—
4% Deb.	118	110	110	— 1
5% Deb.	135½	127	126	— 1
4% Red. Deb. (1962- 67)	111½	107½	107½	—
4% Red. Deb. (1970- 80)	112	108½	108½	—
FORTH BRIDGE				
4% Deb.	107	103	104	—
4% Guar.	106½	102	103	—
L.P.T.B.				
4½ "A"	125	119	121½	—
5% "A"	133½	128	131½	+ 1
3% Guar. (1967-72) ...	99½	98	99	—
5% "B"	124½	118½	120½	—
"C"	72½	64½	64	—
MERSEY				
Ord.	35½	33	32	—
3% Perp. Pref.	72	66	69	—
4% Perp. Deb.	105	103	104	—
3% Perp. Deb.	85½	79½	80	—
IRELAND* BELFAST & C.D.				
Ord.	9	6	7½	—
G. NORTHERN				
Ord.	33½	19	33½	+ ½
Pref.	49	37	51½	+ ½
Guar.	70	57½	79	+ ½
Deb.	90	81½	95	—
IRISH TRANSPORT				
Common	—	—	77½	— ½
3% Deb.	—	—	100½	—

* Latest available quotation

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 30 inclusive unless he is excepted from the provisions of the Control of Engagement Order, 1945, or the vacancy is for employment excepted from the provisions of that Order.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—The Railway Gazette, 33, Tothill Street, Westminster, London, S.W.1.

obtain some motive power for the railways. The Minister also announced that an order for 4,500 heavy coal wagons for the railways would be placed with a South African firm.

Exhibition of "Other People's Jobs."

—On November 13, the Minister of Fuel & Power, Mr. E. Shinwell, P.C., M.P., opened at the Army & Navy Stores, Victoria Street, S.W.1, an exhibition of photographs and models depicting how the nation's coal is used. The work is illustrative of a variety of persons whose jobs involve in one way or another the use of coal. The exhibit relating to railway traction shows the locomotive coal consumption on British railways to be 14 million tons a year, which represents 9 per cent. of the nation's coal. A working model is shown of a L.M.S.R. London-Glasgow train weighing 500 tons, and the coal consumption for the 400-mile journey is given as 7½ tons, which is 42 lb. a mile or 3½ shovels-full a minute. The exhibition is open until November 24.

Road Haulage Association Public Relations.—The Road Haulage Association Public Relations Committee, composed of one representative of each area, met, under its chairman, Mr. Henry T. Dufield, on November 8. It was decided to divide the country into two sections, each to be composed of eight areas, and to appoint a Public Relations Officer for each. The eight southern areas have been placed under the control of Mr. Horace Wyatt, who will combine these activities with those of Controller of Publications, and will be assisted by Mr. John Hibbert. The eight northern areas will be under the control of Mr. F. G. Bibbings; he was formerly A.R.O. Secretary & Traffic Court Representative for Yorkshire. The committee has retained the collaboration of Major H. E. Crawford. The whole organisation will be under the personal supervision of the Director, Mr. R. W. Sewill.

London Organisation for Supplies to India.—The Government of India has established in the United Kingdom, under the High Commissioner for India, an organisation to assist in the sponsoring and supply to India of plant, machinery and various goods. Mr. P. C. Chaudhuri, O.B.E., I.C.S., has been appointed in charge of the organisation, and offices have been opened at 45 to 47, Mount Street, W.1. Advice and assistance will be available from the organisation to exporters and others with interest in the Indian market. The new organisation will take over from the Economic & Overseas Department of the India Office work hitherto performed on behalf of the Government of India by that department in connection with the supply of goods from this country to India. In addition, the organisation will represent the Govern-

OVERSEAS EMPLOYMENT: PERSONAL ASSISTANT TO THE CHIEF ENGINEER required by the Nigerian Government Railway for one tour of 12 to 24 months residential service with possible permanency. Salary £400 a year rising to £720 a year. On salary of £400 a local allowance of £60 and separation allowance for married men of between £84 and £204 a year, according to number of dependants. Free passages and quarters. Candidates must have a working knowledge of railway Civil Engineering, Accounting and Costing methods; contracts and also of the general principles of labour management. They should be fully conversant with modern office methods and be capable of taking charge of a large office. Members of the Institute of Transport would be preferred.

Applications, which must be in writing, stating date of birth, full details of qualifications and experience, including present employment; also Identity and National Service or other registration particulars, and quoting ref. No. F.A.101, should be addressed to the Ministry of Labour and National Service, London Appointments Office, 1-6, Tavistock Square, London, W.C.1.

ment of India at various committees at which India's requirements are planned.

Worthing Railway Centenary.

—In accordance with its practice of celebrating locally the centenary of opening of its various sections of line, the Southern Railway proposes to mark the 100th anniversary of the opening of the railway from Shoreham to Worthing, on November 24, 1845, by an exhibition of historical prints, photographs, and other records, at the Public Art Gallery, Worthing. This is to be opened by His Worship the Mayor of Worthing (Alderman J. A. Mason, J.P., C.C.), on Saturday, November 24, at 2.45 p.m.

Permanent Way Institution (London Section) Annual Elections.—At the meeting of the London Section of the Permanent Way Institution, held at the Junior Institution of Engineers on November 17, Mr. C. E. Dunton, M.A., was elected Chairman, and Mr. J. Tredget, Vice-Chairman, for the ensuing year. Messrs. D. R. Bennett, O.B.E., B. P. Fletcher, M.B.E., Lt.-Colonel J. N. Peck, O.B.E., M.C., B.A., A. S. Quartermain, O.B.E., M.C., B.Sc., and J. Tredget were elected to the Council. Mr. J. A. R. Turner, A.M.Inst.T., succeeded Mr. E. J. Clark as Corresponding Secretary. The formal business was followed by a lecture by Mr. L. Moore, O.B.E., on "Accidents." Drawing on his long and varied experience as an Accident Inspector of the Ministry of War Transport, Mr. Moore described several of the risks to which railwaymen are exposed in the course of their duties, and stressed the need for the prevention of accidents by the strict observance of rules, especially in the posting of look-out men, and the keen regard of elementary precautions. Tribute was paid to the comparative freedom from serious accidents enjoyed by women railway workers during the war. In the subsequent discussion, several speakers suggested additional precautions for safety.

Contracts and Tenders

Below is a list of orders placed recently by the Egyptian State Railways:—

Metropolitan-Cammell Carriage & Wagon Co. Ltd.: Door spring check.
D. Mitchell & Co. Ltd.: Centre lathe.
F. J. Edwards Limited: Guillotine.
P. & W. Maclellan Limited: Mild steel angles.
Superheater Co. Ltd.: Nuts.
Thomas Firth & John Brown Limited: Bars, flat steel.
Ashworth Ross & Co. Ltd.: Weighing machine.
Vacuum Brake Co. Ltd.: Drivers steam brake valves.
Norton Grinding Wheel Co. Ltd.: Hand tools.
Rawplug Co. Ltd.: Hand tools.

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Consolidated Pneumatic Tool Co. Ltd.: Hand tools.

C. J. Hampton Limited: Hand tools.
R. Melhuish (London) Limited: Hand tools.
Alfred Herbert Limited: Centre lathe.
James Archdale & Co. Ltd.: Light radial drill.

Craven Bros. Ltd.: Wheel lathe.
Standard Telephones & Cables Limited: Tension reflectors.
General Electric Co. Ltd.: Electrical materials.

Sun Electrical Co. Ltd.: Porcelain base cut-outs.
Simplex Electric Co. Ltd.: Electrical materials.

British Oxygen Co. Ltd.: Magnetic rollers.
Herbert Terry & Sons Ltd.: Steel springs.
R. A. Lister & Co. Ltd.: Auto trucks.
E. G. Herbert Limited: Screwing machine.
George Angus & Co. Ltd.: Belting dynamo and laces.

British Thomson-Houston Co. Ltd.: Contact copper.

Gwynnes Pumps Limited: Electrical pumps.
Bayliss Jones & Bayliss Limited: Fishbolts and nuts.

Rivet Bolt and Nut Co. Ltd.: Fishbolts.

Crossley Motors Limited has received a contract from the Netherlands State Railways for 500 diesel-engine bus chassis. These chassis, delivery of which will commence in 1946, are of the single-deck type and to the Crossley export design, which includes left-hand steering and provision for an 8-ft. wide body against right-hand steering and 7 ft. 6 in. wide body in this country. The power unit is the Crossley 6-cylinder direct-injection diesel engine. The value of the contract is about £900,000, and is the largest order for this type of chassis ever placed with one British manufacturer at one time. Other export orders received by Crossley Motors Limited, this year include vehicles for South Africa and New Zealand.

Forthcoming Meetings

November 23 (Fri.).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1. 5.30 p.m. "The Place of Women in Post-War Engineering," by Miss Verena Holmes, B.Sc. (Eng.), M.I.Mech.E.

November 24 (Sat.).—The Permanent Way Institution, City of Liverpool Technical College, Liverpool. 3 p.m. Lectures by Members on "The Most Interesting Job I Ever Tackled."

November 28 (Wed.).—The Institution of Locomotive Engineers, in the Hall of the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. 6 p.m. "The Running Man's Ideal Locomotive," by Colonel W. L. Topham, O.B.E. (Member).

Railway Stock Market

Business in stock markets has been brisk with a rising trend in industrials and gold mining shares. British Funds lost ground and oil shares receded, partly because of a tendency to await the result of the Anglo-U.S. loan talks. The Government's statement on its nationalisation programme was couched in very general terms, and as it provided little further information had no appreciable influence on markets. In fact colliery shares were inclined to move higher on hopeful assumptions as to "fair compensation" and home railway junior stocks were better for a similar reason, although prior-charges again moved lower, reflecting the easier tendency in gilt-edged.

The junior stocks also attracted buyers because current large yields have added attractions in view of the rising trend in industrial shares and the small return shown by the latter. Moreover, hopeful assumptions that the basis of compensation may be the existing fixed rental or average dividends paid during the past twenty years, are also assisting sentiment. In any case, it still appears that the Government proposals in respect of transport cannot be ready before the end of next year, and it is extremely doubtful if the compensation basis has yet been decided. On the other hand, assuming the existing fixed rental, or average dividends over the past twenty years, were taken as the basis, a good case apparently could be made out for the contention that home railway stocks are well undervalued at current levels; and moreover either of these bases could not by any means be regarded as generous.

In any case it can confidently be expected that the railway companies will make every effort to secure fair treatment for their stockholders who form one of the largest groups of investors and include all classes of the community. Meanwhile, it is expected that dividends for the current year will be fully maintained. In respect to L.M.S.R. ordinary and L.N.E.R. second preference there may be possibilities of fractional increases, assuming that it is considered no longer necessary to make special additions to contingencies reserves now the war is over. Having regard to uncertainty as to the basis of compensation for stockholders, home railway junior stocks must be classed as carrying a fair measure of speculative risk; but the view appears to be gaining ground that over the next six months or so they may offer good possibilities of appreciation in price. This also applies to preference stocks, such as L.M.S.R. seniors, L.N.E.R. firsts, and also Southern preferred; in regard to guaranteed stocks, compensation terms should not overlook the cumulative dividend rights of these stocks.

As compared with a week ago, Great Western ordinary further improved from 55 to 55½; but the 5 per cent. preference receded to 107, and the guaranteed stock to 121; the 4 per cent. debentures declined from 112 to 110½. L.M.S.R. ordinary moved up from 26½ to 28, the 1923 preference improved a point to 58, and the senior preference two points to 77½; on the other hand, the guaranteed stock remained at par, and the 4 per cent. debentures lost a point at 105.

Southern deferred gained ½ at 23½, and

the preferred a point at 74, but the 5 per cent. preference was fractionally lower at 106. L.N.E.R. preferred and deferred strengthened to 6½ and 3½ respectively; the second preference was 28½, compared with 27½ a week ago, and the first preference 57 compared with 55; the 3 per cent. and 4 per cent. debentures were unchanged at 91 and 106, with the first guaranteed at par and the second guaranteed 93. In contrast with the easier tendency in prior charges of the main-line companies, London Transport "A" and "B" stocks strengthened; the "C" remained at 64. Metropolitan Assented improved to 60 and Metropolitan Surplus Lands shares at 11s. were better again.

Argentine railway stocks lost ground, partly because of a deceased account overhanging the market. It is becoming increasingly evident that next year is likely to be critical for the railways as the decisions then made may determine their whole future. It is apparent that as things are now there is no scope for profitable working even should prosperity in South America increase as a result of revival in international trade. Compared with a week ago, Buenos Ayres Great Southern has eased from 11½ to 11; the 5 per cent. preference declined from 24½ to 23½, and the 4 per cent. debentures from 63½ to 63. Central Argentine issues weakened on the meeting, the 4 per cent. debentures to 53½ and the 5 per cent. debentures to 60½. French railway sterling bonds moved back on the political development. Canadian Pacifics were active and higher at 20½, reflecting the better trend in dollar stocks.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week		No. of Week	Aggregate traffic to date			Shares or Stock	Prices					
				Total this year	Inc. or dec. compared with 1943/4		Totals		Increase or decrease		Highest 1944	Lowest 1944	Nov. 20 1945	Yield % (See Note)		
							1944/5	1943/4								
South & Central America	Antofagasta (Chili) & Bolivia	834	11.11.45	£ 26,610	—	£ 1,600	45	1,326,070	1,280,770	+	45,300	Ord. Stk.	13½	9½	10½	Nil
	Argentine North Eastern ...	753	10.11.45	20,400	+	287	19	364,481	337,275	+	27,206	6 p.c. Deb.	18½	4½	8	Nil
	Bolivar ...	174	Oct., 1945	4,472	—	1,028	43	48,577	53,255	—	4,678	Bonds	19½	15	22½	Nil
	Brazil ...	2,771	10.11.45	140,625	+	8,125	19	2,377,500	2,313,500	+	64,000	Ord. Stk.	7½	3½	5½	Nil
	Buenos Ayres & Pacific	5,080	10.11.45	176,000	—	15,312	19	3,595,875	3,296,750	+	299,125	Ord. Stk.	14½	9½	11½	Nil
	Buenos Ayres Great Southern	1,924	10.11.45	75,125	+	8,625	19	1,343,500	1,286,938	+	56,562	"	13½	9½	9½	Nil
	Buenos Ayres Western	3,700	10.11.45	190,356	+	16,459	19	3,597,447	3,352,703	+	244,704	"	10½	6½	8	Nil
	Central Argentine ...	Do.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Do.	972	10.11.45	39,916	+	9,334	19	658,174	586,577	+	71,597	Ord. Stk.	5½	4	6½	Nil
	Cent. Uruguay of M. Video	262	Sept., 1945	28,214	+	7,228	14	91,367	265,443	+	36,092	Stk.	17½	14½	15	Nil
	Costa Rica ...	70	Oct., 1945	28,400	—	372	43	301,535	237,415	+	35,720	1 Mt. Deb.	101	101	101	£5 18/3
	Dorada ...	808	10.11.45	29,062	+	5,156	19	500,862	445,437	+	55,425	Ord. Stk.	6½	4½	6½	Nil
	Entre Rios ...	1,030	10.11.45	32,900	+	4,900	45	1,120,300	975,500	+	144,800	Ord. Stk.	38½	23½	26½	Nil
	Great Western of Brazil	794	Sept., 1945	\$615,723	+	\$122,464	39	\$6,867,641	\$5,799,919	+	\$1,067,722	"	—	—	—	—
	International of Cl. Amer.	22½	Oct., 1945	6,135	—	752	43	62,380	78,218	—	15,838	1st Pref.	1½	1	1	Nil
	Interoceanic of Mexico	1,918	10.11.45	59,571	+	17,923	45	2,404,574	2,100,657	+	303,917	5 p.c. Deb.	88	79	72½	£6 10/9
	La Guaira & Caracas...	483	14.11.45	ps613,900	+	ps168,600	19	ps12,678,800	ps9,520,500	+	ps3,158,300	Ord. Stk.	5½	4½	1½	Nil
Leopoldina ...	319	Sept., 1945	18,431	+	2,169	13	55,363	51,326	+	4,037	Ord. Stk.	75/10	65/10	76½	£3 11	
Mexican ...	382	15.11.45	8,293	—	3,139	45	164,215	161,156	—	3,059	Ord. Sh.	75/10	65/10	76½	£3 11	
Midland Uruguay ...	113	Sept., 1945	4,379	—	1,042	13	15,562	18,480	—	2,918	"	75/10	65/10	76½	£3 11	
Nitrato ...	274	9.11.45	\$54,525	—	\$4,849	19	\$1,142,815	\$1,104,552	+	\$38,263	Pr. Li. Stk.	79½	68	78½	£7 12/11	
North Western of Uruguay	1,059	Oct., 1945	142,092	+	9,592	17	564,925	508,152	+	56,773	Pr. Stk.	9	10	9½	Nil	
Paraguay Central ...	100	Sept., 1945	c82,000	+	c10,000	12	c271,000	c247,000	—	c24,000	Ord. Stk.	57½	46	54	£5 11/11	
Peruvian Corporation	153½	Oct., 1945	3,025	+	530	17	9,690	10,735	—	1,045	Ord. Sh.	21½	13½	16½	£3 11/11	
Salvador ...	1301	10.11.45	45,584	+	4,123	19	825,875	886,147	—	60,272	Ord. Stk.	4	2½	1½	Nil	
San Paulo ...	73	Sept., 1945	1,634	—	325	13	5,031	4,199	+	832	"	—	—	—	—	
Talca ...	23,569	Sept., 1945	7,087,600	—	470,000	39	65,464,000	65,629,600	—	163,600	—	—	—	—	—	
United of Havana	17,030	14.11.45	1,561,000	—	69,200	45	55,696,000	55,444,600	—	251,400	Ord. Stk.	17½	13½	20½	2½	
Uruguay Northern ...																
Canada	Canadian National	202	Sept., 1945	17,842	—	2,977	25	145,230	140,130	+	5,100	Ord. Stk.	129½	97½	124½	£3 11/2
	Canadian Pacific	607	Aug., 1945	76,111	—	9,694	48	846,863	899,876	—	53,013	"	—	—	—	—
Various	Barri Light ...	607	10.10.45	17,865	—	2,831	28	308,189	348,417	—	40,228	Pr. Sh.	7½	5½	9½	£5 18/11
	Beira ...	277	Sept., 1945	15,818	—	4,876	12	45,287	60,947	—	15,660	B. Deb.	63½	58	66½	£4 3/9
	Egyptian Delta ...	1,900	25.8.45	69,279	—	7,861	21	1,003,742	1,300,117	—	296,375	Inc. Deb.	101½	99½	95½	£4 3/9
	Manila ...	2,445	Aug., 1945	506,011	—	45,150	48	5,552,569	5,922,969	—	370,400	"	—	—	—	—
	Midland of W. Australia	13,301	13.10.45	1,050,529	+	48,186	28	27,867,121	24,463,534	+	3,403,587	"	—	—	—	—
	Nigeria ...	4,774	April, 1945	1,285,324	+	96,325	—	—	—	—	—	—	—	—	—	—
	Rhodesia ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	South African	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Victoria ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Note. Yields are based on the approximate current price and are within a fraction of ½. Argentine traffic is given in sterling calculated @ 16 pesos to the £.

† Receipts are calculated @ 1s. 6d. to the rupee.